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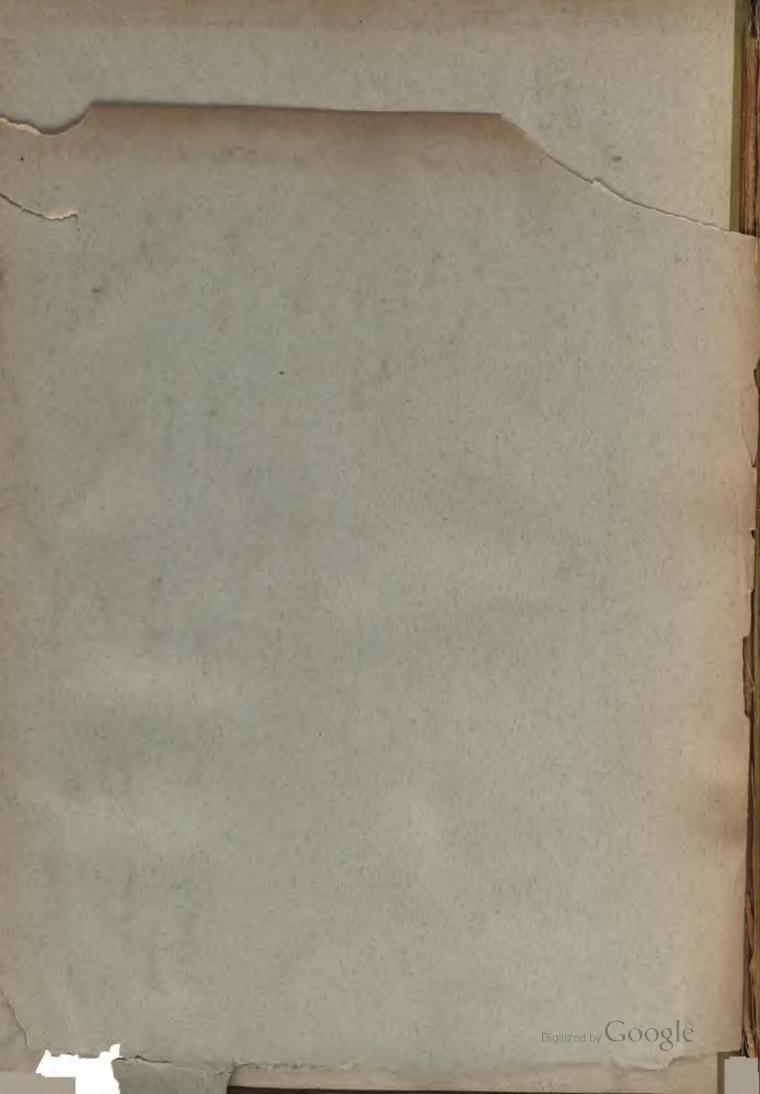
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Vol. X

December 18, 1912

No. 1

548797

PAPER

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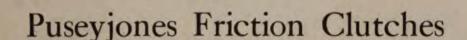
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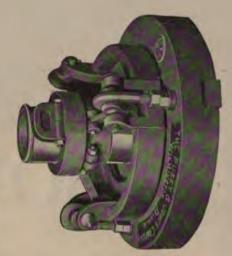
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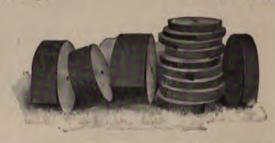


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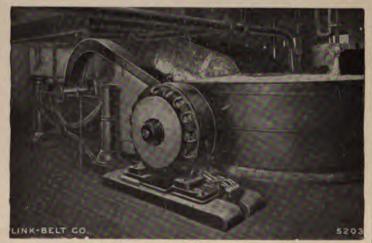
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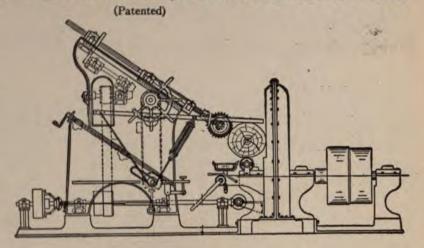
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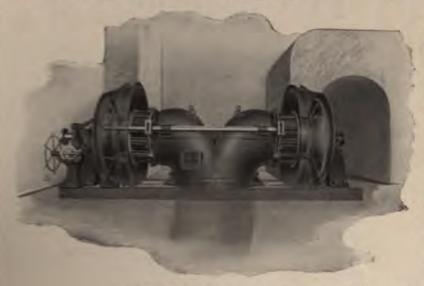


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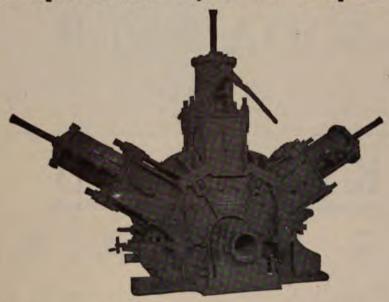
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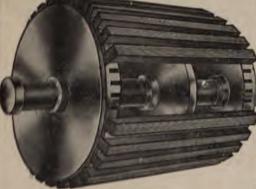
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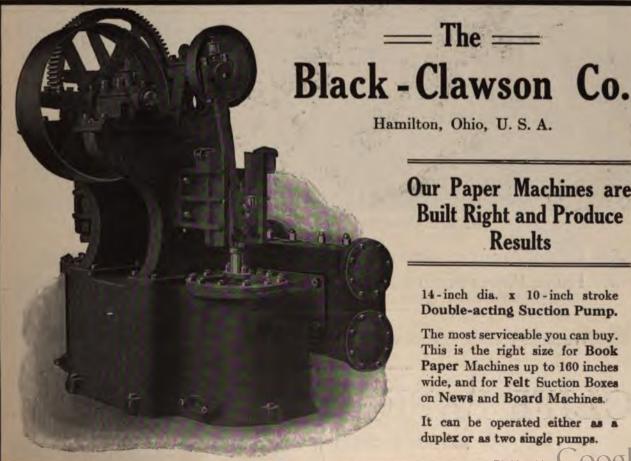
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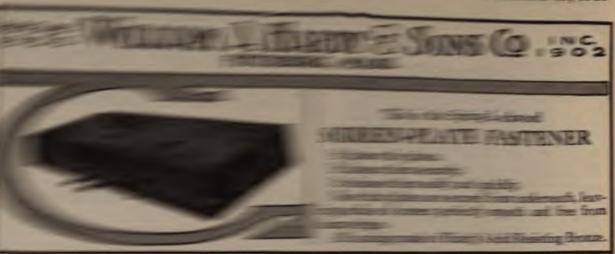


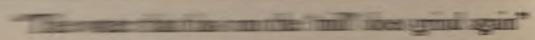
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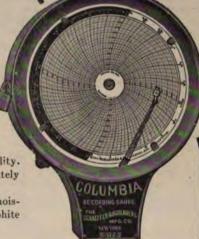
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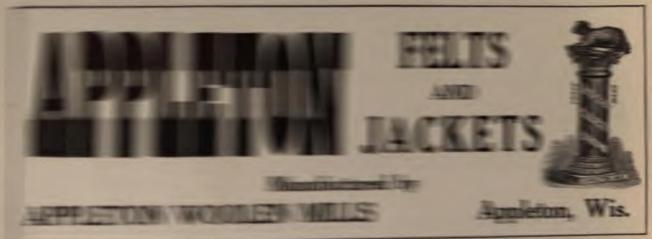
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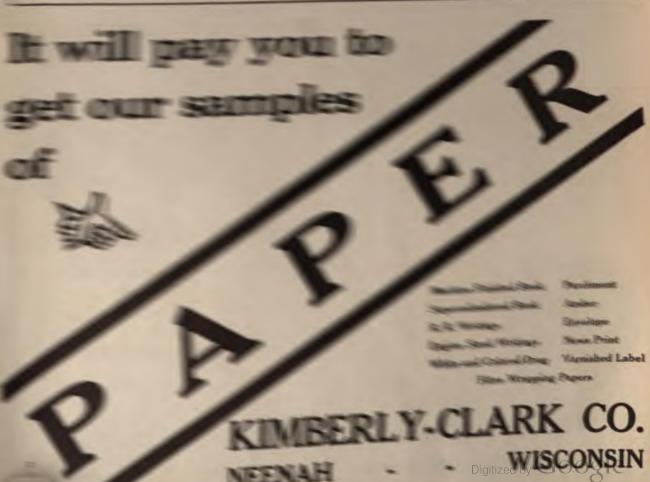
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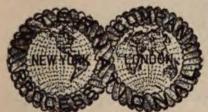
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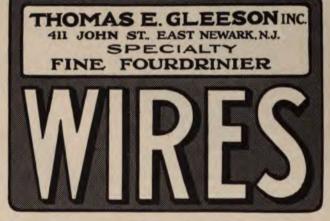
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Vol. X

DECEMBER 18, 1912

THE NEW YORK

No. 1

Power Consumption in Beating

Variations Peculiar to Material and Mode of Treatment—Factors in the Beating Process By CLAYTON BEADLE



INTERESTING discussion has been entered into between Clayton Beadle, the well known London authority on papermaking, and a German engineering expert, Arnold Rehn, regarding power consumption in beating. Mr. Rehn disputes some of the views expressed by Mr. Beadle in his work on "The Theory and Practice of Beat-

ing" and has published his opinion in an article on "Power Consumption when Beating Half and Whole Stuffs" which appeared in the Papierfabrikant some time ago. Mr. Beadle comments on this article in a recent issue of the Papierfabrikant, the substance of

his communication being as follows:

First let me say that it is a source of very great gratification to me that my contributions upon the subject have aroused so much interest in Germany. Had I a paper mill of my own, where I could have the beating of various materials under constant and daily observation, I should have been able to advance the subject much more materially. My experience has been gained in numerous mills in this country [Great Britain] and no two papermakers agree in the matter of detail upon the subject of beating. I have endeavored in my articles to explain how and why this is and when I have arrived at any results I have over and over again emphasized the fact that the results, whatever they may be, though true under the particular conditions under which the results were obtained, may not represent conclusions which can be drawn in a general sort of way. Hence I have considered it necessary, where and when possible, to give all the available information in regard to shape of beater, size of roll, speed of roll, weight of rolls, size of bars, distance between bars and similar details, but I have left papermakers so far as possible, to compare the results which I have from time to time recorded, together with what information in regard to detail I have been able to collect, with the results obtained or obtainable in their own mills under different conditions. My object really was to stimulate inquiry and to persuade others, where possible, to follow my example in making careful records and tests on the subject of

beating of different materials.

Mr. Rehn has done an excellent thing in giving to the paper trade the diagrams produced by the automatically recording dynamometer. Ten years ago I strongly urged that such an instrument should be used in a paper mill where possible. This instrument is of particular interest to me as affording a comparison between an electric drive with a self-recording instrument whereby any variations in the course of beating could be shown in diagrammatic form, and the dynamometer made use of in one of the series of trials which I published many years ago. The dynamometer which I used was in connection with beaters driven by a steam engine. The recording instrument was made by means of a spring arrangement which in effect recorded the pressure exerted but, inasmuch as the pressure exerted by the roll recorded in diagram form was carefully calibrated by actual indications of the steam engine, the instrument could be used for showing the actual variation in horsepower consumption as the result of actual beating, quite apart from power expended in shafting, circulation, etc. However, I will return to this point later.

I wish to say that after carefully reading Mr. Rehn's article I have come to the conclusion that, instead of his results (as he ventures to indicate) showing a discordance with my own, they actually-in most cases at least—show a verification. When his results do appear to differ from mine it is because the conditions in the two instances differed from one another and these apparent differences make the comparison of the two sets of results all the more interesting. I must say I am very much interested in his results and it gives me much pleasure to comment upon them in comparison with my own and also to refer to other points in his article which agree with my own experience.

Mr. Rehn refers to the fact that the mode of dealing with the rags in the pulper and consequently the power consumption therein varies with almost every mill.

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This is a point to which I have already referred. In the case of rags, this is particularly true. The mode of treatment, as well as the quality and kind of rag, will in a very large measure determine the amount of power to be expended in the processes of what we call "breaking in," that is, reducing the material of half stuff and "beating," that is, reducing the half stuff to fully beaten stuff. It goes without saying that if rags were not boiled at all they would require far more beating than boiled rags do, but inasmuch as unboiled rags would be useless for a commercial paper it is a point not worth considering; but I go further and say that the extent to which the boiling is carried, which influences the softness and hydration of the material, also tends to pave the way toward the process of dis-integration. Yes, I agree with the view that even the mode of washing the rags after boiling will influence the feel of the rags as regards softness. This will indicate a difference in the amount of power required to bring about the disintegration. (See point 1 of the following remarks of Mr. Rehn.) Even the treatment of the rags prior to the boiling has, in my own experience, a great deal to do with the question of power consumption. Thus, whether the rags are hand cut or machine cut and whether by either process they are cut into small or larger pieces, the amount of power will be made to vary accordingly.

As the result of treatment prior to beating, one can take an extreme case. In some blotting mills in this country it has been the custom, in lieu of boiling in soda, to boil in lime, and the material used for the manufacture of blottings is often what is known as muslins"—old lace curtains and so forth. This material is naturally of a tender nature, requiring comparatively little beating. If this material is boiled in lime and subsequently allowed to remain heated up after boiling with still some lime in it, a species of fermentation or oxidation is set up in the material whereby the material remains hot for a long time. The process can be arrested by turning the material over and allowing it to cool. At the moment that the material is discharged from the boilers it is comparatively strong but when the material has been allowed to ferment or oxidize for some time it is comparatively tender. As a result of this process the rags are far more easy to disintegrate. Possibly they do not take more than half the power for the actual beating that they would have taken, had this process been omitted. Lime is an important factor, here. It enables the material to be 'tendered" but in my opinion it rather has the opposite effect of caustic soda in that it prevents the material from hydrating during the "tendering" process.

The author refers to the length of fiber—this, of

course, is only one of the numerous factors in beating. Welhave shown, by making careful measurements of the length of the fiber at different stages of the beating, that the diminution in the length is far greater at the beginning of the beating and that in a case of strong linen, where beating was carried on for ten hours, there was practically no diminution in length after the sixth hour, after which period the beating is consumed in hydrating the stuff, that is, it bruises the stuff and gives the material the necessary wetness without further reducing the length of the fiber. In another set of results we have actually taken cotton of a definite length and have beaten it carefully for several hours, at the end of which time the average length was no less than the original. In this case the whole of the beating was employed in bruising and hydrating the fiber and none

in the reduction of length. These results were first published in *The Chemical News*, September, 1907, in an article entitled, "Diminution in the Length of Cotton and Linen during the Preparation of Stuff for the Manufacture of Paper," by Clayton Beadle and Henry P. Stevens

Coming to the kind of rags, as affecting power consumption, one notices a very great difference in power consumption in the breaker to begin with. Take the quality known as "butchers blues," formerly a very strong linen rag, a form of new cuttings. These would enormously tax the breakers, and entail a very great expenditure in power, in fact when made of linen, as I knew it in the days of my youth, it was the most difficult of all rags to work in.

It is not generally known that the washing drum entails the expenditure of much power, but the power required to drive the washing drum is a variable factor. If the material is of a very free nature and parts with its water readily, the power required to turn the drum is much less than in the case of a material which is of a comparatively wet nature. In the latter case, the material clings to the surface of the drum as the water passes through and tends to lift on the drum and en-

tails more power in consequence.

The statement that the power required remains almost constant during the whole of the beating is proved where the rolls at the end of the beating were adjusted to the same height as they were when charging and during the washing. Now this is a point which requires some explanation. The power consumption can be made to vary at different stages of the beating according to the adjustment of the roll. On the other hand, the roll can be so adjusted, as in the case cited, that the lowering of the roll corresponds with the disintegration of the stuff and in such a way that the power would "remain" practically constant during the whole process of the beating. This very statement made by the author may be liable to be misunderstood by readers just in the same way as the author himself has misunderstood my own statements. Mr. Rehn speaks about the power remaining practically constant and yet, further on he says "At each downward movement of the roll we can observe in the diagram an immediate increase in power consumption, but with continued beating it gradually diminishes—contrary to Beadle's observations—until it once more shows a sudden increase when the roll is again lowered." These two statements are apparent contradictions of each other and yet I think I understand them both sufficiently to see what is the intention of the author. I also think I agree with him-and can show it-but I do not agree with his statement that his experience is contrary to my observations. All I can say is that my observations have apparently been misunderstood. On page 41 of "The Theory and Practice of Beating" I make the following observation ". . . . it will be noticed that for a period of two hours the roll was not lowered, during the whole of which time the power remained practically stationary."

I only used the expression "practically stationary" in the same way that I presume Mr. Rehn makes his statement in regard to the power required remaining almost constant during the whole of the beating period. I did not mean it to be inferred that the material did not consume slightly diminished power as the beating proceeds without altering the level of the roll.

In fact, there is an extraordinary similarity between the electrical power diagrams given by Mr. Rehn and those recorded on pages 67 and 73 of "Theorie und Praxis des Mahlens." The diagrams given in our book are, of course, very much reduced and consequently

¹I know of one important instance in which new unboiled rags have been used and that is in the manufacture of a paper to be afterwards compressed and used for calender roll coverings.

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in the case of (b) we might expect that the "thickness" from the point of view of circulation would be greater in the case of (a) than of (b). By thickness I mean here the "stodginess" and resistance to circulation which long stuff exhibits. I would argue from this that the less the amount of breaking in from the point of view of half stuff prior to furnishing into the beater, the greater the amount of power required for the circulation during the earlier stage of the beating in the Thus, when a beater is first furnished with such half stuff, a paddle can be stood up in it, and it will travel round in a vertical position without falling over or sinking down. As the beating proceeds the threads become disintegrated and separated from one another and the threads in time become disintegrated to the condition of individual fibers. The material reaches a stage at which the paddle will no longer stand up. The mass becomes more liquid, the circulation becomes easier and more rapid, and the power consumption required for the circulation diminishes. The consistency or thickness of the material changes more rapidly at the initial stages of beating. The "ropiness" of the material is lost. During the second half of the beating process and after this ropiness has disappeared, the circulation is more uniform. This agrees with Mr. Rehn's experience in regard to the amount of power consumption which he has observed. (See point 3 of the following remarks of Mr. Rehn.)

I agree with Mr. Rehn's observation that the more the beating process is accelerated by sharp beating or, in other words, the shorter the pulp is beaten the less power is requisite for beating, except that I think this observation requires careful interpretation. produces short stuff by so called sharp beating the fibers are cut instead of being bruised, which operation, of course, requires much less power than the bruising operation. In other words, the power is expended in cutting asunder instead of beating or bruising and power expended in this way, though it results in a much shorter fiber, is much more economical than when expended in defacing and deforming the individual fibers by the process of beating and milling. (See point 4 of the following remarks of Mr. Rehn.)

The observation that material containing an "admixture of bleached cellulose can be beaten greasy more rapidly and with less consumption of power than unbleached" is very interesting and I agree with it as I have had much evidence of it in various classes of materials quite apart from rag treatment. This is only another proof of the effects of chemical treatment prior to beating on the amount of power consumption during the beating.

One can understand the observation "The higher the percentage of ash (mineral) of the paper the more, of course, was the consumption of power per 100 kilogrammes diminished." In all the trials which came under my notice the power consumption was calculated to the amounts of fibrous material contained in the beater, the object being to determine among other things the actual amount of power consumption per hundredweight of fibrous material of different descrip-Then, if it was a matter of calculating it to the output of the machine, an allowance had to be made for the amount of mineral contained in the paper produced.

Mr. Rehn emphasizes the point that it is possible to obtain greasy pulp even when the charge is thin. I should like, however, to ask whether it is expedient to do this from a papermaker's practical standpoint. The papermaker naturally wishes to get the best that he can from his beaters and the general experience in England is that for the production of greasy stuff a thick furnish is desirable. (See point 5 of the following remarks of Mr. Rehn.)

A point which I think will be of particular interest to papermakers is one brought out by Mr. Rehn's figures, namely, that the power consumption on beating is greater in presence of rosin size than when the size is added after the beating operation is completed. (See point 6 of the following remarks of Mr. Rehn.) If this is to hold good in general practice, papermakers should take particular note of this. I am of opinion that just as good results concerning ink resistance are to be obtained when the sizing materials are added to the chest as when added to the beater. This being so it would be as well to add the size to the hollander just before emptying or to the chest, in order to decrease the power consumption. Few practical paper-makers realize the influence that some chemical substances have upon the actual power consumption required for beating, e.g., the difference in the beating when a small amount of alkali is present or a small amount of acid substance. I would assume that the increased power consumption on the addition of the size is to be noticed more on the addition of the alum. That is, I would presume that the rosin size alone, if added without alum, would not exert an increased power consumption and that an increased power consumption would be noted even if alum alone were added without rosin size.

At the conclusion of his article Mr. Rehn refers to a point which is undoubtedly the reason against various observers coming to a general agreement and that is the question of the "personal equation." The beater is merely an instrument in the hands of the beaterman, to be worked economically or wastefully. Thus, Mr. Rehn states that the power may fluctuate up to 20 per cent, even in the case of reliable engineers, with the same charge and without these fluctuations becoming noticeable in the pulp itself. Therefore "A rational treatment of the beating must be obtained by good instruction of the men as well as by conscientious supervision. An automatically recording dynamometer performs excellent service and by the use of diagrams a certain stuff can be obtained in the same manner—i.e., with the same consumption of power as formerly." In other words, he asserts that the same result can be achieved over and over again in this way and without any variation in the consumption of power—that is, it does away with the personal equation. No doubt a great deal of power is to be saved by a careful perusal of automatic recording diagrams. When the most economical mode of treatment from the power consumption point of view has been ascertained, then the same can be repeated.

As evidence of this sort of thing I should like to refer to an experience which I had on my visit to a mill in the United States. This mill was producing very high class soda aspen pulp for its own consumption. I went over with the proprietor. I saw a large battery of digesters. He pointed out to me that all his men were Irishmen—not at all educated men, so he informed me, but that they had to perform what he considered to be a very scientific operation in the matter of raising the temperature, duration of time and so forth. He said to me, "Come and see how it is done." He took me into a department he called his chart room. In this chart room there were a number of selfrecording instruments indicating in diagram form exactly what each digester did day and night. From the shape of the diagrams he could trace exactly how the boilings had been conducted and could call the men to account if they had not carried out instructions. This was about 16 years ago when people were not so scientific as they are at the present time. I venture to think that a somewhat similar modus operandi may some day be adopted in regard to beaters.

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The Sulphite Waste Liquor Problem



Statistics of Paper Manufacture in Finland

How the Industry has Developed-Material Used and Value of Production



HE industrial statistics of Finland for a recent period afford some interesting data concerning the development of the paper industry in that country. According to an investigation conducted by G. R. Snellman, details of which are given in the October number of *Mercator*, the increase of mills and production in Finland has been con-

stant during the past twenty-five years. The figures refer to paper mills, millboard mills and chemical and mechanical pulp mills. The following figures refer to the number of hands employed, the figures for every fifth year being given

	Number	of hands	Percentage of			
Year	Men	Women	Total	industrial workers		
1885	1,444	715	2,159	5.7		
1890	2,286	1,014	3,300	5.6		
1895	2,644	1,475	4,119	6.3		
1900	4,255	2,095	6,350	6.4		
1905	5,956	3,161	9,117	8.8		
1908	7,943	3,192	11,135	8.4		

The years 1898 and 1899 and still more 1907 show a considerable development. The years following indicate a depression, with a corresponding decrease in the number of the employed, the paper trade being in a marked degree dependent on the general trade situation.

In figures of percentage of the total of all industrial workmen the paper trade on an average employed from 5 to 6 per cent. The percentage rose in 1901 to 7 per cent and attained in 1907 its maximum with 9.7 per cent; after that year the figure drops lower. The number of women employed has constantly been from 30 to 35 per cent. On the other hand the number of young persons shows a falling off during the two latest periods. In the period from 1905 to 1908 the number of young people under 15 years of age was 0.1 per cent and of those between 15 and 18, 4.7 per cent.

The figures concerning the value of the production are interesting. It must, however, be pointed out that the figures given in the industrial statistics are in many cases too high, especially for earlier years, goods partly manufactured by one mill and finished by another in many cases having been declared at their full value by both mills and thus being calculated twice. The production is given as follows, in million marks:

1885	9.1	1900	27.7
1890	12.9	1905	40.9
1895	15.9	1909	59 B

The production per workman has kept fairly stationary at about 4,000 marks a year.

The production of mechanical pulp and millboards, of chemical pulp and of paper is stated as follows, the quantities representing tons:

	Mechanical pulp		
Year	and millboards	Chemical pulp	Paper
1890	21,955	5,335	13,869
1895	41,812	9,431	21,883
1900	52,784	18,422	45,206
19 05	113,816	29,599	70,484
1909	150,020	71,528	108,039

During this period of twenty years the production of mechanical pulp and millboards increased to about $4\frac{1}{2}$ times, the production of chemical pulp 16 times and the production of paper about 7 times.

It is impossible to ascertain with any degree of accuracy the quantity of the raw material used—viz.: of pulpwood and wood refuse at the pulp mills and of pulp and rags at the paper mills. Frequently no figures are given at all, often either the quantities of the raw materials used or else their money value is given. For 1907 and 1908 these figures, however, appear to be fairly accurate, and we therefore append them, the quantities representing tons:

		Chemical pulp	Paper mills		
	pulp mills.	mills. Pulp and	Mechanical	Chemical	
	Pulpwood	other wood	pulp	pulp	
1907	689,363	517,984	71,387	30,582	
1908	546,475	546,943	68,268	31,483	

Pulp and paper being among Finland's principal articles of export, it is natural that the imports to Finland of these goods cannot be large. Previous to 1860 the value of the imports did not reach even 100,000 marks, and in the years 1860-65 it just exceeded that amount by a trifle. During the later periods the value of pulp, paper and paper goods imported was as follows:

Years	Mks.	Years	Mks.
1885	490,740	1900	1,386,923
1890	664,909	1905	1,904,109
1895	796,405	1910	2,636,997

Of the raw materials used in the manufacture of paper—rags have been imported in fairly large quantities from Russia and to some extent from other countries. The volume of these imports has been as follows (for some years the value of rag paper imported is included):

Years	Tons	Years	Tons
1875	2,459	1895	1,919
1880	4,058	1900	2,760
1885	3,522	1905	2,473
1890	804	1910	3,205

The exports of paper manufactures consist of pulp, millboards, paper and other products relatively of small importance, consisting chiefly of wall papers. The total export of these goods and their proportion to the whole export of the country will be seen from the following table:

	E	xport			Export
Year	Million	Per cent of	Year	Million	Per cent of
	Marks	total export	I	Marks	total export
1875	2.8	3.3	1895	12.9	9.0
1880	8.2	6.7	1900	21.6	10.9
1885	8.0	8.9	1905	34.3	13.8
1890	8.6	9.3	1910	50.1	17.4

In the '60s the whole export was quite insignificant. In the '70s it began to increase and the increase has been a constant one; thus the volume of exports has more than doubled during the last ten years. At present the exports of paper takes a promiennt place in the exports of the country, being surpassed in importance by wood produce only.

The exports of paper and pulp are made up as follows:

	Pulp	Millboards		Paper		Paper and Cardboard goods	
Mill.	Per			Mill.	Per	Mill.	Per
				MKS.	cent	MKS.	cent
1.8	20.9	1.7	20.3	5.0	<i>5</i> 8.0	0.1	0.8
2.3	17.8	3.1	23.8	7.4	<i>5</i> 7.6	0.1	0.8
2.7	12.7	5.1	23.4	13.5	62.9	0.2	1.0
7.4	21.6	6.1	17.8	20.3	<i>59.2</i>	0.5	1.4
11.6	27.2	6.0	14.1	24.3	57.0	0.7	1.7
11.8	27.8	5.7	13.4	24.3	57.2	0.7	1.6
12.3	24.5	6.6	13.2	30.4	60.6	0.9	1.7
	Mks. 1.8 2.3 2.7 7.4 11.6 11.8	Mill. Per cent 1.8 20.9 2.3 17.8 2.7 12.7 7.4 21.6 11.6 27.2 11.8 27.8	Mill. Per Mil Mks. cent Mk 1.8 20.9 1.7 2.3 17.8 3.1 2.7 12.7 5.1 7.4 21.6 6.1 11.6 27.2 6.0 11.8 27.8 5.7	Mill. Per Mks. cent 1.8 20.9 1.7 20.3 2.3 17.8 3.1 23.8 2.7 12.7 5.1 23.4 7.4 21.6 6.1 17.8 11.6 27.2 6.0 14.1 11.8 27.8 5.7 13.4	Mill. Per Mill. Per Mss. Mill. Per Mss. Mks. Mill. Per Mss. 1.8 20.9 1.7 20.3 5.0 2.3 17.8 3.1 23.8 7.4 2.7 12.7 5.1 23.4 13.5 7.4 21.6 6.1 17.8 20.3 11.6 27.2 6.0 14.1 24.3 11.8 27.8 5.7 13.4 24.3	Mill. Per cent Mill. Per Mks. Mill. Per Mks. Mill. Per cent Mks. 1.8 20.9 1.7 20.3 5.0 58.0 2.5 17.8 3.1 23.8 7.4 57.6 2.7 12.7 5.1 23.4 13.5 68.9 7.4 21.6 6.1 17.8 20.3 59.2 11.6 27.2 6.0 14.1 24.3 57.0 11.8 27.8 5.7 13.4 24.3 57.2	Pulp Millboards Paper Card Mill. Per Mill.

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The Japanese Paper Trade and Exports

The Peculiar Quality of Japanese Papers—Distinctive Specialties—Paper Napkins



APERS are divided in Japan usually into two groups, namely, the Nihonshi, or papers of Japanese origin, and the Seiyoshi, or papers of Western origin. By the former are meant the varieties for which the bark fibers of gampi, paper mulberry, and edgeworthia papyrifera are used as material, with which, again, the so-called "neri," a sort of vegetable

glue, is mixed up, whereas sizing in the strict sense of the words is avoided. Papers of this group have in the past been turned out for the most part by rather small mills with simple hand tools. The latter, the "Western papers," on the other hand, comprise those made from wood, rags, straw, etc., sizing being put in, and are produced by mills established more or less on a grand scale. Nevertheless, remarks the Japan Trade Review, it is interesting to see the recent general tendency which is on the way to mitigate the distinction of the two. At present large machinery is not uncommonly employed for the manufacture of the Japanese papers, and the best possible methods are adopted for the improvement of their quality in order to accommodate them to the foreigners' use, while, on the other hand, the special features of the Japanese papers are now shared to some extent by those of Western origin.

In spite of this tendency, we are far from saying that the peculiar qualities of the two kinds of our paper are going to be completely blended. The traits which are found only in the Japanese papers and are lacking in the Western papers will by no means be lost, and it is our intention here to mark out the special features of them and to give suggestions concerning the sphere in which they may appropriately be applied.

As the principal items under the group of Japanese export papers may be enumerated the Japanese copying papers, renshi, pasteboard, hanshi and mino, mouthpieces for cigarette, and paper napkin. may add to them têngujo, torinoko, toyo, paper hangings, and imitation leather paper as promising items.

Copying Paper.—Papers gampi and usuyo are included in this class, and are employed for copying and printing purposes. Their tenacity is unique, and because of the strength of their tissue they are not easily broken nor torn off even in their wet condition. Moreover, they are extremely thin, and their water absorption and ink impression is perfect. Last year an advance was noticed in the figure of their export, the main causes of which are to be found in the increase of their machine manufactures, and the enlargement of market abroad of those on reels, which are used chiefly for printing. present the hand manufactures occupy eighty per cent of the total sum of export copying paper, but the recent tendency is that the machine manufactures are gradually finding a larger market, and it seems beyond doubt that in the near future the latter will be found dominant. The machine manufactures are about ten per cent lower in price, and are produced by the Kochi and Fukui Prefectures. It is also to be noted that in printing the gampi produces the best result as applied on the surfaces of the paper mould when stereotype is cast into it.

Renshi.—The chief destination of this paper is China. The tendency of its market in the past has been that in 1905 and 1908 there were sudden advances, followed by several years of depression, which was again counteracted in the last two years.

The revision of tariff last year induced the large mills of Japan to turn their attention more to the goods of home use, which are generally inferior in quality to the export kinds. But the restoration of peace in China has since then been bringing back its market condition to the normal state, and the demand for renshi is on the

way to sound progress.

Torinoko.—The paper current by this name is one that was first manufactured by our Governmental Printing Bureau in imitation of the original torinoko, and is used almost exclusively for printing, its unequalled tenacity, which stands very coarse treatment, and its leather-like quality and appearance rendering it to be employed for valuable purposes like diplomas and paper money and various important notes which are required to be kept many years. Though there is a number of foreign similar papers, which are made in imitation of our torinoko, none of them is found to be a worthy substitute for it in so far as the quality is concerned, whereas on account of its high price, the progress of its market abroad does not yet attain to a really satisfactory result. The chief destinations of the export torinoko are China and the United States, Great Britain and France coming next. For last year a small reduction was witnessed in the export figure of this item, mainly due to some dwindle in its traffic with America. The export to China, on the other hand, was greatly stimulated by the requirement of this paper by the Republican Government to issue new paper money. Good conditions have since then been maintained and in consequence a more or less raising of quotations seems to be inevitable in near future.

Tengujo.—This is the thinnest and the softest paper in Japan, and its own elegant appearance and the fine look of enclosed objects seen through this paper confer on it an unequalled practical value used as wrapper of jewelry and precious metals and other delicately worked or ornamented objects. The tengujo paper perfectly protects them and also makes them appear very beautiful. It is moreover used extensively as filler by dentists, and its cheaper varieties, used for ladies' The application of tengujo to the paper napkin

reaches also a considerable sum.

Paper-Hangings or Wallpaper.—Both in quality and appearance the Japanese export paper-hangings have no analogous products in the whole world. Their peculiar features lie in the facts that genuine Japanese paper of high quality is employed as their foundation, which, therefore, is as tough and flexible as leather, and that Japanese lacquer applied on it makes its appearance look splendid, and also has the merit of waterproof. Every material used in our paper-hangings is of perpetual nature, and therefore they are kept unchanged and unspoiled for very long years.

The paper used for foundation is taken from paper mulberry, the tissue of which is very flexible but tenacious. It is hardened by shibu, a sort of varnish taken from the astringent persimmon, and after laying some metallic color, which makes the paper appear brilliant in gold, silver, or pearly luster, it is finally lacquered, on which, again, painting is often made with various pigments.

Embossed designs are made usually with hand by

employing brushes, striking paper on wooden blocks. It is to be noted, therefore, that very high reliefs are produced, and they are toned far more finely and delicately compared with the foreign goods of machine make. Brilliancy of color in gold, silver, pearl, etc., is really admirable, and in our opinion, it seems to meet mostly to the taste of the people of the Continent.

Paper-Napkin.—We notice a conspicuous increase in the amount of export of our paper napkins in the last year, which undoubtedly was caused by the enlargement of its market in new directions owing to the reduction of its quotation. As one of the new destinations may be mentioned the eastern parts of Siberia, where the recent enormous immigration of Russian people is remarkably enhancing the demand for our

goods of this line.

The paper used for this purpose is a thin Western paper or our tengujo. The former occupies about sixty per cent of the total amount of production, and is largely exported to America. To European countries, on the other hand, the tengujo napkin commands larger market. As to the size, those of 131/2 inches square are welcomed most in the case of the former, and next come those of 13 inches square. As to the mode of crape, those crumpled on both sides have hitherto been commanding a better market than those crumpled on one side only. Lately, however, the condition of the oneside crumpled ones have become favorable, owing to the cheapness of price, and the lightness of weight which has no small bearing on the customs duty. Again, as to the patterns, those printed in monochrome are most welcomed, unfigured blank ones also being welcomed in every quarter. The latest appearance of embossed patterns seems to have been received with admiration. The tengujo napkins are usually made in 15 inches square; but recently the 14 inch goods are becoming very salable. For tengujo napkins, printing is generally far more finely executed than for the other, and some of this kind are not craped.

The Export Western Papers.—Papers belonging to this class are mostly printing papers, the unglazed ones being used newspapers, and those which are of superior qualities chiefly for books. The demand in China for printing papers is now really enormous, and their market is in very good prospect. This tendency has only been emphasized by the outbreak of the revolution and the founding of the republic which followed, journalism having been stimulated to an extreme degree. This vast demand has hitherto been met largely by the Western products, and hence orders for goods are made only as temporary expedients. It requires some more space of time for our printing papers to compete successfully with the commodity of others, which can only be realized as the result of reduction in price which will be realized sooner or later as an out-

come of the progress on paper industry.

Edgeworthia Papyrifera Trading Paper—S. Kato has commenced the sale of a Japanese paper of fine quality in London, which is appropriate for blue printing, sharing at the same time the tenacity and strength of the best Japanese paper, so that its foldings are not broken nor torn off though it is handled repeatedly in a rough

fashion.

For a Paper Mill in Africa

An American consular officer reports that he has been approached by a resident of an African country who is desirous of entering into relations with an American group of capitalists with a view of establishing a paper mill in that country. Correspondence may be sent to the consular officer in question, from whom further particulars can be obtained. Address File No. 9852, Bureau of Manufacturers, Washington, D. C.

A Lady Papermaker of the 18th Century

FROM the earliest times the manufacture of colored papers was in Europe a "free trade," controlled by no guild or union. To this is probably due the fact that the industry was carried on in great part by members of the gentler sex, who probably found in trading in the gay colored goods a congenial occupation, and, as our illustration from the Papierfabrikant shows, were not averse to decorating themselves with specimens of their handicraft.

The illustration represents the lady papermaker, as she appeared at the great fairs then held in the chief European cities and of which the annual markets still held at Leipzig, Nishni Novgorod and other points are

relics.

Here, attired in a manner to attract attention, her dress bountifully trimmed with the gayest products of her establishment, a color brush adorns her head dress, and still other brushes, forks, combs and other requisites used in her trade, are suspended from her girdle, so that she is a practical as well as an attractive repre-



sentative of her honorable calling. Only her powdered coiffure and brocade petticoat betray her sex.

The colored papers of her time were in many respects unique, both as to quality and style. Even the simple grades showed a pattern worked in a few primitive shades, while the so called Turkish papers, were a revelation in the variety and heterogenous combination of their tints. With a large brush the body colors, usually white, blue and red mixed with albumen and ox-gall, were applied indiscriminately to the sheets, previously sized with mucilage; then alcohol was sprayed in drops, causing the colors to spread or radiate in all directions; and lastly with a comb or quill, wavelike figures were drawn through the whole, imparting to it some regularity. In ancient volumes, specimens of this paper are still to be found in the inside of covers, fly leaves, etc., and the more elaborate kinds defy modern reproduction.

Such were the wares the lady papermaker produced and traded in and it is specimens of these that constitute the finery with which she has decked her comely person. It is to be hoped that her example will not be followed by the modern occupation hunting female, or our effort to revive the foregoing phase of feminine employment may not be received by our readers with unmixed favor.

U. S. Restrictions on Rag Importations

Paper Stock Anomalies—Points Worthy of Consideration by Importers

By THE LONDON CORRESPONDENT OF PAPER



VIEW of the fact that the great bulk of the paper stock for American mills comes from Western Europe, it might be well for American papermakers to look into the restrictions at present existent on the import of rags. The matter is of particular moment to this country as recent statistics show that England, Scotland and Ireland export

more papermaking rags to America than any other country—excepting perhaps Germany. The matter has been voiced by the head of the export department of a well known firm, and some of the points made are

worthy of consideration.

The writer deals first with the consular invoice or declaration, which must be appended to bills of lading in order to secure admittance for the goods at the American port of entry. He does not object to that document, however, even though he regards it as vexatious, for he recognizes that it is useful to the U. S. authorities in compiling statistics, while the fee charged is negligible. But it is the quarantine laws and the compulsory disinfection of the rags that make the trouble. The offending section of the Act of Congress is quoted as follows:

"All rags . . . used in the manufacture of paper and for other purposes which are collected, packed, or handled in any foreign port or place . . . shall, prior to shipment to the United States, be subjected to disinfection by one of the prescribed methods. . . The disinfection of the articles mentioned above shall be performed under the supervision of the United States Consul or a medical officer of the United States, and a certificate in duplicate signed by said consul or medical officer, shall be issued with each consignment of same, which certificate shall identify the articles and state that they have been disinfected in accordance with the United States quarantine regulations."

The writer contends that the elaborate disinfection demanded by this law is wasteful and unnecessary, bearing fully in mind due precautions necessary to minimize the risk of spreading disease. He asserts that no class of workers is more immune from sickness and disease than rag sorters even in times of epidemic. He holds that this indicates that rags are not an active agent in carrying infection—an inference which is perhaps just a little far-fetched. A second point is that rags are invariably exported in press packed bales—a condition in which they remain until their arrival at the mill—therefore a merely superficial disinfection ought to be sufficient.

Apart, however, from the over-stringency of the law, the administration of it is what the rag exporter especially objects to. The typical American consul is, he says, a gentleman of social standing and pleasant manners, but with no practical knowledge of the disinfection of rags. When approached on the subject he will probably hand over a copy of the quarantine regu-

lations, in which several fumigating processes are detailed and suggest that the shipper should indicate the most feasible process for the circumstances.

This leads to all kinds of abuses. At some ports the local consul's interpretation of the regulations is so severe that the shipping of rags at that particular port is virtually an impossibility. The great bulk of the British and Continental exports are of low grade rags valued at \$10 to \$25 per ton. In some cases the expense of disinfecting these by the costly methods occasionally insisted upon would almost equal the actual value of the goods. He says:

"Who, for example, would think of booking a contract to supply dark colored cottons at £3 (\$15) to £5 (\$25) per ton c. and f. to a U. S. port, knowing that the rags must first be fumigated in a closed chamber for two or three hours, not more than five cwt. being treated at a time? One can understand the answer recently given by a well-known merchant when asked how he packed a certain grade for export: 'Well,' he said, 'we usually make them up in nice little parcels neatly tied with red tape.'"

The same want of practical knowledge, continues the critic, leads other consular officers to the other extreme, and, in perfect good faith, they sanction processes that are absolutely ineffective. It is even said that at certain ports some packers, taking advantage of the consul's reluctance to supervise an operation which they regard as outside his legitimate sphere, ship goods which have not been disinfected at all. This unequal application of the act is thus distinctly unjust to shippers who are required to fulfil its provisions literally.

Naturally this state of affairs reacts adversely on the eonsumer. Not only is he hampered in his buying by having to pay the high prices required to cover the cost of unnecessary disinfection, but he may likewise have the mortification of seeing a parcel of goods for which he was in treaty shipped to Canada, where there are

no vexatious restrictions.

As for the remedy our friend is distinctly of opinion that it is in the hands of the American importers—and them alone. Combined action on the part of British shippers to bring pressure on the British Foreign Office and Board of Trade would be useless mainly because it would mean the exclusion of the great Continental exporters and there is, at present, no representative British association of shippers. He advocates the alteration—or at least the emendation—of the existing regulations, in the direction of the abolition of wasteful disinfection. In such a case, the strongest appeal would naturally come from influential traders within the United States and he urges American papermakers to make representations to the United States Government in order that the irksome regulations at present hampering the expansion of the papermaking industry may at least be modified. Here then is a matter for the American Paper and Pulp Association to look into without delay.

Paper for cigarettes was exported by Spain during the first half of this year worth \$375,840, against \$337,-680 worth the same period in 1911.

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Early Papermaking in the Far East

SOME interesting details concerning early paper and papermaking are given in an account of an antiquarian research campaign in Chinese Turkestan by Dr. M. Aurel Stein, which is published by Macmillans under the title "Ruins of Desert Cathay."

Ancient Chinese tradition maintains that prior to the invention of actual paper, wood and silk were used, among other materials, for purposes of correspondence or record. In an old rubbish heap on a deserted site in the Lop-nor Desert Dr. Stein found a strip of white silk inscribed with Kharosthi characters, which perhaps dated from the second or third century A.D. At that period, however-at any rate in that district-official and other stationery was mostly of wood, in the form of strips a few inches in length by an inch or so broad. The central portion of one of these was hollowed out and smoothed down into the semblance of a rectangular tablet, on which the communication was written. Another piece of wood was then fitted into the hollowed out space, covering it and thus serving the purpose of an envelope, the two pieces being secured by a cord and the knot sealed. This wooden stationery survived for many centuries, for Stein found examples of it at a ruined Tibetan outpost at Miran, dating from the eighth to the ninth century A.D. Paper was not made locally at that date, so that supplies of it being difficult to obtain the old wooden tablets continued in use there. Occasionally, however, sheets of strong well made paper turned up, apparently manufactured from fibers of the Daphne plant, which grew far away to the south, adjoining the Himalayan watershed.

The first discovery of paper in China is attributed by reliable historical texts to the year 102 A.D. In all probability, however, it dates still further back, as on the site of an old watch tower on the western extension of the Great Wall of China Dr. Stein unearthed " small roll after another of neatly folded paper,' ceedingly thin and brittle, on which were written communications in an unknown but Aramaic-like script. In close proximity to them were found records written on the wooden stationery just referred to, several of which bore precise dates (probably contemporary with those of the paper documents) corresponding to the first quarter of the first century A.D., or eighty to a hundred years prior to the alleged first invention of paper in China. When Dr. Stein returned to Europe from his second journey he submitted these ancient documents on paper to Professor J. von Wiesner, the chief authority on plant physiology as connected with the history of paper manufacture, and he proved by a microscopical analysis of the material that the documents represented the earliest effort at present known in the production of rag paper.

Extensive hoards of manuscripts on paper were discovered by Dr. Stein in an ancient temple chamber near Tun-huang, which had remained walled up for 900 years. One roll was 70 feet long, made up, of course, of separate pieces pasted end to end, and about a foot wide. The paper is described as yellowish in hue, strongly made, and remarkably tough and smooth. Some of the manuscripts had evidently been brought from Tibet, an early seat of Central Asian paper manufacture.

Contemporary with silk, wood and paper, another bookmaking material was used in the districts referred to in the first few centuries of the Christian era, viz., palm leaves. One well-preserved manuscript of this kind, consisting of some seventy leaves twenty inches long, is among those brought to England by Dr. Stein,

who refers it to the third or fourth century A.D. at the latest.

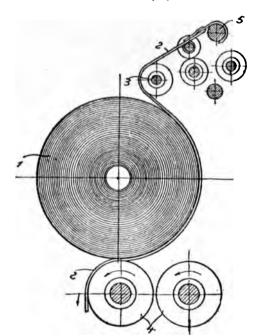
Amongst more recent paper manuscript was a long roll containing a Buddhist text in Chinese, printed from blocks, having a wood-engraved frontispiece. This was dated 864 A.D., a much earlier period than that generally assigned to the establishment on a commercial basis, even in China, of the process of printing books from blocks.

Another art of early origin still in use by the printer or bookmaker of today, is stencilling. In some of the ancient Buddhist temples near Tan-huang Dr. Stein saw walls decorated with long rows of small pictures of Buddha, all alike in outline and pose, stencilled on the plaster surface. Khotan, a town in the extreme west of the Chinese territory, still makes packing paper of exceptionally good quality, which Dr. Stein considered to be the best material of its kind in all that region. It is, of course, manufactured by hand.

Device for Lifting Rolls of Paper

AN APPARATUS for facilitating the removal of rolls of paper from the machine is the subject of a recent German patent, issued to the firm of Ferd. Emil Jagenberg, Düsseldorf. The illustration shows the application of the new device to the cutting and winding apparatus at the moment the roll of paper is passing over the front roller.

On the completion of the winding of the reel, 1, any desired number of leather belts, 2, at suitable distances



apart are passed under the raised pressing roll, 2, around the roll and between the latter and the slowly turning carrying rolls, 4. These draw the belts tight, while their upper ends are attached, by means of hooks to the crosspiece, 5. The carrying rolls tend to move the belts, forced with great pressure against them, in a forward direction, and the latter are caused to raise the roll of paper into the position shown in the illustration, finally rolling it completely clear of the carrying rolls.

The belts, in place of which steel bands or other flat, flexible pulling apparatus may be used, can also be carried with the last thickness of paper around the reel and under the carrying rolls, which effectively prevents the ends of the belts getting between the carrying rolls.

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APER

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No. 1

The Coal Roads Decision

THE DECISION just handed down by the Supreme Court of the United States disposes of the pending suit but not of the pending question.

The Hepburn law, which was enacted some years ago by the Federal Congress makes it unlawful for any interstate railroad to transport any article, other than timber, "manufactured, mined or produced by or under its authority, or which it may own in whole or in part, or in which it may have any interest, direct or indirect."

Under this provision a suit was instituted in the Circuit Court for Eastern Pennsylvania against the Philadelphia & Reading, the Lehigh Valley, the Delaware, Lackawanna & Western, the Central Railroad of New Jersey, and the Erie and the New York, Susquehanna & Western railroads, in which it was alleged that the ownership of these lines in the stock of certain companies owning and operating anthracite coal mines was in violation of the Hepburn law. This contention was sustained by the lower court, whereupon an appeal was taken, resulting in the decision under consideration.

The Supreme Court distinctly sustained the constitutionality of the act as it had formerly done in another case under adjudication; then proceeded to sterilize it, leaving it upon the statute book as a mere form without any vital substance.

It was held that while the railroads could not as such own or operate the mines, it was not unlawful for them to own the stock of the coal companies by which the mines were held and operated. By what process of reasoning the learned Court was able to make any such distinction, or to reach the conclusion that the owning of stock was not even an indirect interest in the opera-

tion is far beyond the mental vision of the ordinary

We are not undertaking at this time to pass upon the merits of the controversy between the railroads and the consumers of coal, but do sincerely regret that this important proceeding, which has been long drawn out, leads us to nothing in the end but more legislation and more litigation. Having fixed the right of the legislative branch of the Government to enact laws separating railroads from the ownership of certain commodities they carry, the public will not be satisfied until the roads are directly forbidden by statute to own stock in the controlling companies.

It is such decisions as this, creating distinctions without a difference, which lend encouragement to those who are clamoring for the recall of judges and the recall of judicial decisions. It is a safe bet, if this latest conclusion of the Supreme Court could be submitted to the public, it would be overruled by a ten to one majority.

Failing Labor Supply

TOT THE least among the difficulties which confront the American manufacturer is the question of procuring common labor. Skilled workmen may usually be had by paying the price demanded, and it used to be the case with common labor as well: more recently, however, it does not seem to be a matter of compensation with the latter class, for it sometimes cannot be had at all.

Unfortunately too, the efficiency of common labor appears to have decreased in proportion to the square of the demand. Because men are hard to procure it too often happens that they take advantage of the situation and render a service satisfactory neither in quantity nor quality.

American industry has for a long while been dependent in a great measure for its ordinary labor upon the steady stream of immigration pouring in from the densely populated countries of Europe. Very strangely, however, at this very time, when American opportunities appear to be most inviting, the volume of immigration has materially diminished.

The report recently submitted by Charles Nagel, Secretary of Commerce and Labor, for the fiscal year 1912, contains the surprising statement that the immigrant aliens admitted to the United States within the period number 838,172, a decrease of 40,415 as compared with the figures of the previous year. On the other hand it is shown by the same report that 333,262 aliens have departed this year; an increase of 37,596 over 1911.

Thus it appears that we are losing both in the arrivals and departures. Fewer workmen are coming from Europe and a smaller proportion of those who come are content to remain.

Another very significant story is told by the figures tabulated in the Immigration Office of the Canadian Government. From April 1 to December 1 of the cur-

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rent year, 321,058 immigrants arrived in Canada. Of these 108,035 were from the United States, an increase of 6,349 over the same period of last year. It need scarcely be said the men who go from this country across the border to settle the unoccupied territory of the neighboring dominion are as a rule from our most industrious classes.

A further disturbing consideration is the fact that while, as we have seen, other foreign sources of labor supply are failing us, our own American laboring classes are becoming more and more indisposed to do any real work until driven to it by dire necessity. Why this should be true it is difficult to understand, unless it be due to the false attitude which Americans have toward labor.

The common sentiment seems to be that men ought to rise above work. Instead of the children being taught in our public schools that they are being prepared to put intelligence and efficiency into their labors, too often they are made to believe that the purpose of education is to enable them to escape work and live by their wits. It is frequently the case therefore that men prefer to live in idleness and poverty rather than exchange honest toil for the wage they so sorely need. The country is overrun with both men and women who have persuaded themselves that they are too good to work, and yet who are totally unprepared to live without it.

What we need is to reverse the order of our teaching and let it be impressed upon all that humiliation and disgrace come not from doing well the common tasks of life, but from idleness or the indifferent performance of the work undertaken. Americans need to be taught that the humblest toiler is a better citizen and entitled to more respectful consideration than the habitual loafer. Napoleon, it is written, was on one occasion walking with too very distinguished women when some slaves came along the narrow pathway carrying heavy loads upon their shoulders. One of the women angrily ordered them to keep at a distance; but the Emporer, courteously making room for the slaves, mildly rebuked her by saying, "Respect the burden, Madam!"

It might go far toward solving our labor problems if we should all acquire the habit of respecting more those who bear burdens, and less those who make them.

In regard to the proposal to impose a literary test on immigrants capable of doing the hard physical work of manual laborers, and bar from the United States all prospective workers who are unable to read or write, the New York Sun, in a recent issue, very pertinently observes:

Literacy can be acquired here as well as elsewhere. It is by no means essential to the morality of a man. If it be lacking he may still be a good citizen, a successful father, a thrifty and forehanded member of the community. The number of illiterates who, granted the opportunity, fail to educate their children is negligible. There are many men of more or less consequence in the communities in which they live whose parents had to make their mark.

What the United States of America should do is to welcome every well built man not of criminal record who wants to live here, see to it that he gets a reasonable fair chance, and offer him the chance to improve his mind if he wants to. There is no danger of getting too many strong backs and willing hands in this country, nor is there any real danger that they will be unable to care for themselves and their children, even though they may not bring a certificate of school attendance.

Tariff Hearings

HAIRMAN UNDERWOOD of the Ways and Means Committee has announced a plan for hearings preliminary to tariff legislation that is something of a departure from practice which has heretofore prevailed; and we are not sure that it will not be more satisfactory.

Instead of continuing the hearings indefinitely and giving everybody a chance to be heard, whether he has anything to say worth hearing or not, it is now proposed to give not more than one day to each schedule; this to be supplemented by the filing of briefs by such parties as may care to do so.

The custom of taking and printing countless volumes of testimony, much of it irrelevant and even contradictory, has never appealed to us as being particularly illuminating.

A concise and intelligent statement of the facts will command more attention and carry more conviction.

The new plan will moreover relieve busy men of the necessity of waiting in Washington for days to be heard, and also relieve Congress of the presence by many professional loafers, who ought never to be heard.

A resolution was introduced in the House by Representative Berger, providing that the Government condemn and buy the New York, New Haven & Hartford Railroad.

It was hardly necessary to ask the Government to do so much. To buy the road is all that needs to be done; the public has already condemned it.

A Notable Anniversary

The seventy-fifth anniversary of the establishment of the firm of C. G. Haubold, jr., Ltd., of Chemnitz, Saxony, was celebrated on October 8, 1912. The history of this firm is intimately associated with the growth and development of the machinery industry of Chemnitz and Saxony. The firm directly succeeds the Sächsischen Maschinenbau Co., and was originally started in 1826 by Carl Gottlieb Haubold, known universally as Father Haubold. It was his cousin, bearing the same name and generally known as "Cousin," who, on the retirement of the founder, in 1837, established the present firm and under his son royal Saxon Privy Councillor Carl Hermann Haubold, it attained its preëminence in the machinery industry of Germany and its reputation for the manufacture of papermaking machinery.

In 1905, shortly after the decease of C. H. Haubold, the great business was incorporated with a capital stock of 3,000,000 marks, owned principally by his heirs. The management of the company, which gives employment to upwards of 1,100 engineers, mechanics and officials, is in the hands of Director Uhlig and its business during the past corporation year, amounted to upwards of 7,400,000 marks, (\$1,761,000).

THE WEEK'S LATEST TRADE NEWS

Planning Water Storage on Big Scale

[SPECIAL TO PAPER]

APPLETON, Wis., Dec. 16—A meeting was held in Appleton last Thursday night of the principal waterpower-owning interests on the Fox river, including the Green Bay & Mississippi Canal Co., Kimberly-Clark Co., Fox River Paper Co., Neenah & Menasha Water Power Co., Patten Paper Co., American Writing Paper Co., and John I. Beggs, in connection with the forwarding of the proposed water storage system for the Fox river which has been projected for several years, the bill to authorize which died in the last Wisconsin legislature two years ago. It is proposed to introduce the bill again at the meeting of the legislature to be to introduce the bill again at the meeting of the legislature to be

The principal object of the present meeting was to hear the report of the arbitrators, T. W. Orbison, of Appleton, and Moses Hooper, of Oshkosh, who were appointed to apportion the stock of the proposed \$200,000 corporation between the various water-

of the proposed \$200,000 corporation between the various waterpower owners on the river in proportion to their various holdings. The report of the arbitrators was presented and discussed, and while absolute agreement between the various waterpower owners was not reached, progress was made, thereto.

Just at present the state of Wisconsin, through its legislature, is displaying a very great interest in waterpower matters, and is endeavoring to enact some sort of a general law which will give the state more authority than it now has over privately owned waterpowers. It is not believed that this projected legislation will have deleterious effect upon the authorization of the Fox river reservoir system for it is practically underliable that such reservoir

will have deleterious effect upon the authoriaztion of the Fox river reservoir system, for it is practically undeniable that such reservoir systems are of highest value to all streams that have them, from the point of view of all parties concerned.

All the details respecting the proposed Fox river reservoir system have not been worked out, and the exact location of the reservoir has not been determined, but the reservoir will be somewhere at the headwaters of the Wolf river, and will cover about twenty thousand acres of land and impound about 4,000,000,000 cubic feet of water. It is estimated that this reservoir will hold water enough to maintain the normal flow of Fox river in dry seasons for a period of three months. The cost of the proposed reservoir system is expected to be about \$200,000. The project has gone far enough to make it certain that it will be proceeded with just as soon as the necessary legislative authority is secured.

Figuring on World's Widest Machine

[SPECIAL TO PAPER]

WATERTOWN, Dec. 16-The Bagley & Sewall Company of this city, is figuring, it is said, on the construction of a 204 inch machine, but the officers of the company decline to make any state-ment concerning it, until it is assured that the contract is landed If this machine is built, it will be the largest fourdrinier in the world, breaking the record recently made by the Pusey & Jones Company in the construction of its 202 inch machine.

The largest machine put out by the Bagley & Sewall Company up to the present time was 186 inches in width and was shipped a short time ago to the Crown-Columbia Paper Company, of Cames, Washington. When the new plant of the local company is completed, it will be possible to construct machines up to 300 inches in width, although it is not expected that this width will be reached in some time. Local paper manufacturers say that the tendency in the papermaking business is constantly toward larger machines, which mean increased output of the mills in which they are installed.

Black River.

Attorney Van Allen Opens a New York Office

[SPECIAL TO PAPER]

WATERTOWN, Dec. 16—Attorney W. B. Van Allen, of Carthage, holding the position of vice president in the De Grasse Paper Company and also in the Carthage Sulphite Pulp & Paper Company, has decided to open a law office in New York, where he will spend a portion of his time. This action on his part was necessitated by his connection with the American Paper & Pulp Association as one of its attorneys. Mr. Van Allen has numerous clients among the paper manufacturers and has handled many important cases. He will continue to maintain his residence and an office in Carthage. an office in Carthage. BLACK RIVER.

Progress on the Bagley & Sewall Building

[SPECIAL TO PAPER]

[SPECIAL TO PAPER]

Waterown, Dec. 16—While it was expected a few weeks ago that the Bagley & Sewall Company of this city would have its new plant ready for operation by the first of January, it has now been found impossible to get it in shape for use before the beginning of February. As soon as the two new water wheels are installed a complete transfer of the machinery from the old plant to the new will be made. Already two heavy lathes having bases weighing twenty-five tons each, have been installed. These lathes are used for turning the heavy five-foot rolls used on the largest paper machines turned out by the company. The company is now manufacturing the heavy dryers and press rolls. The new plant will be as near fireproof as it is possible to make it and will be the most modern of its kind in operation. Nothing but steel, concrete and glass have been used in its construction,

it and will be the most modern of its kind in operation. Nothing but steel, concrete and glass have been used in its construction, except the floors, which are of concrete covered with wood to make them easier for the workmen.

The old plant is to be used by the vise department, which will occupy the present machine shops and the other buildings will be used mainly for storage purposes.

A few days ago a fire broke in the shavings in the boiler room, to which the fire department responded and soon extinguished the fire before it had done any damage, except that of burning some of the electric wires carrying power. some of the electric wires carrying power.

BLACK RIVER.

Workers' Sickness Insurance in Wisconsin

[SPECIAL TO PAPER]

Green Bay, Wis., Dec. 16—A proposition to have manufacturers and workmen contribute a certain amount of money monthly toward a fund for employees' sickness insurance will be monthly toward a fund for employees' sickness insurance will be considered by the Wisconsin Industrial commission for incorporation into law by the legislature next spring. The commission plans to have the sickness insurance for working men and women administered by the industrial commission and to be correlated with the administration of the workers' compensation act. The scheme is not new, for it has been in operation in Germany for a number of years and was recently put into effect in England. The plan as contemplated here does not have full control of the injury statute. No aid could be given by the state without a constitutional amendment.

NEWS OF THE GREEN BAY DISTRICT

About fifty paper manufacturers and pulp dealers, and a number of representatives of railroad companies attended the hearing before the railroad rate commission in the complaint of the Wisconsin Paper & Pulp Association against the leading railroads for a reduction of 20 per cent in the rates on pulp in Wis-

Hugh Boyle, manager of the Wolf River Paper & Fiber Company of Shawano, will not go to Ladysmith as superintendent of the Menasha Paper Company's plant, as was expected a short time ago. He will remain at the mill he helped to begin business ten years ago.

Action was begun last week by Bertha Henfer against the Wolf River Paper & Fiber Company in circuit court at Shawano to recover \$10,000 for the death of her husband, Philip Henger, at the time of the floods last summer.

Temporary Shut Down at International

[SPECIAL TO PAPER]

WATERTOWN, Dec. 16—One of the large beater wheels at the Ontario mill of the Watertown Division of the International Paper Company, broke Thursday night, necessitating the closing down of both of the fourdriniers at that plant. It will not be possible to put these machines in operation again before tomorrow and in the meantime about eighty employees are out of work, while the new wheel is being installed. The four machines located at the "C. R." and No. 4 mills are, however, being run day and night, in order that the company may keep up with its

At the present time the paper business in this section is ex-cellent and all of the mills are running full time with large orders for paper waiting to be filled.

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Rumored: Purchase of National Box Company

[SPECIAL TO PAPER]

. DAYTON; O., Dec. 16—Speculation is rife throughout the paper and paper box manufacturing interests of the Miami Valley regarding the rumored purchase or contemplated purchase of the plant of the National Box Board Company at Middletown by Paul Arthur Sorg, president of the Paul A. Sorg Paper Company, of that city. Mr. Sorg has spent but little time at his home since the report first became current and the officials, who are in direct charge of the plant during his absence, are not willing to discuss it. It is understood, however, that the negotiations have been under way for some time and that they are nearing completion.
The Sorg Company had outlined plans for the construction of a large addition to its plant several months ago but the beginning of the work was delayed because of the fact that a referendum petition was circulated by a number of persons who opposed the grant that had been made to the Sorg Company by the City Council, consisting of a strip of land about six feet wide. The referendum resulted in favor of the company and the work was immediately started after the result of the election was known. It is the purpose of the company to expend approximately \$400,-000 in the completion of its contemplated improvement and it is hoped to have it finished and ready for operation not later than June or July of next year.

The rumored purchase of the plant of the National Box Board Company, coupled with the announcement that a substantial enlargement of the plant is to be made, leads to the belief that the company is planning to make of its Middletown property one of the largest and most comprehensive in the Miami Valley. These changes will mean the employment of several hundred workingmen in addition to those already employed and the expenditure in Middletown of approximately \$50,000 annually more than is spent there at the present time.

THE ANOMALOUS SITUATION IN STRAW

E. B. Weston, president of the Weston Paper and Manufacturing Company, of this city; president of the Auglaize Paper Company, at St. Mary's, Ohio; president of the Terre Haute Paper Company, at Terre Haute, Indiana; and president of the Rockford Paper Mills Company, of Rockford, Ill., has just returned from a tour of his properties. He has but recently purchased the plant of the St. Liber Paper Company of Paper and Manufacture. chased the plant of the St. John Paper Company at Rockford, Illinois, which produces straw paper. "There is almost a per-Illinois, which produces straw paper. "There is almost a perfect famine in straw," said Mr. Weston, in discussing the business outlook several days ago. "There seems to be an abundance of straw, however, in those sections where there are no paper mills straw, however, in those sections where there are no paper mills but a great scarcity in those places where mills are located. This seems to be an anomalous condition but it's true, nevertheless. Our Terre Haute mills were closed down for about twelve days recently and this is the first time that this has become necessary there for a period of more than ten years. This was made necessary, however, on account of our inability to get straw at the desired time. The scarcity of straw is such that we have to send so far after it that the freight costs more than the original expenditure for the product itself. The company now in control of the Rockford mills, consists of the following: President: E. B. Weston: vice-president. George Little: secretary T. J. Mc-B. Weston; vice-president, George Little; secretary, T. J. Mc-Daniel; and treasurer, F. C. Billingham.

Frank Farrell, formerly identified with the National Box Board

Company, at Middletown, has been appointed manager of the mills at St. Mary's, of the Auglaize Paper Company, and S. A. Cook, of Marseliles, Ohio, has been made secretary of the com-

pany.

IMPROVEMENTS AND NEW EQUIPMENT MAKE NEW MILL

Substantially a new mill and practically new equipment constitute the changes and improvements that are being made by the Sterling Paper Company at Hamilton, according to the statement of J. Howard Friend, president of the company and former president of the Friend Paper Company at West Carrollton. This concern is engaged in making paper for the West Carrollton Parchment Paper Company, paper for waxing purposes and light weight book paper. The new equipment for this plant constant. of two new machines, new beaters, new machinery for the rag room and a new power plant. The total cost of the improvements and new equipment that have been obtained by the Sterling Paper Company is placed at approximately \$250,000. It is expected that the work will be completed so that the mill will be ready for operation under its modern and changed conditions not later than However, arrangements have been made whereby the plant may be kept in constant operation until the new mill shall have become ready for occupancy. A part of the plant consists of four stories, a part two stories and a part one story, chiefly the machine room. These, however, are additional to a basement that is occupied almost entirely. While considerable work has already been done, a delay of about four months was occasioned because of the inability of the company to get steel, which it had ordered when the price was lower than it was when it was finally obtained. "Of course, the steel companies knew

they could make greater profits off some one else than off our company after the contract had been made before the increase in the price of steel came, so they simply set our work aside to take up that which meant a greater profit for them," said Mr. Friend. The Sterling Paper Company is officered by J. Howard Friend, as president and treasurer, and Howard W. Friend, his son, a vice-president and secretary.

THE SCARCITY OF RAGS

"Prices are pretty good," said President Friend, "although rags have shot up like an arrow within the last few weeks. I find that rags are unusually scarce but this is a splendid sign when regarded in its influence on the general business conditions. There is no better barometer as to the industrial conditions of the country than the demand for rags and building material. The collections are bad also in the South and Southwest but they are comparatively good in the Middle states and Pacific states."

IMPROVEMENTS AT THE HINCKLEY FIBER MILI

Mr. Friend stated that a new acid plant is being installed by the Hinckley Fiber Company at Hinckley, New York, of which he is the head and chief owner. Among the equipment that is being installed at this plant are two new digesters, boilers and other equipment. In fact that capacity of the plant will be substantially doubled. An addition is also being constructed to the This consists of but one story but it is about one hundred feet in height. This is for the purpose of installing the digesters. The company also purchased two new three-hundred horsepower boilers from The Wickes Brothers' Company, at Saginaw, Michi-gan. These will be installed in the plant in New York in the near future. The most formidable competitor of the Wickes' Brothers in this contract was the Babcock & Wilcox Company, of New York, which was represented here by W. A. Neisel, representing the Cincinnati, branch.

THE MEAD ENGINE COMPANY AFFAIRS

Although it is denied with some emphasis, the rumor has gained persistent currency that the Mead Engine Company, of this city, is about to change hands, going to Eastern capitalists, who are dealing through Cincinnati interests. The company manufactures one of the most modern engines on the market and has many improvements that are not represented in the average propelling agency. While it is a comparatively new concern, it pelling agency. While it is a comparatively new concern, it has developed a prosperous business and it is predicted that it will be responsible for a practical revolution in the industrial activities of the country. It is officered as follows: President, Adam Schantz; first vice-president, Cyrus E. Mead; second vice-president, Edward G. Pease; secretary and treasurer, J. Edward Sauer; constructing engineer, Henry Souther. These officials and George B. Cos, of Cincinnati, and George and Edward Sohngen, of Hamilton, constitute the directorate.

OLD OHIO MILL TO BE PUT IN ORDER

Work of overhauling has been inaugurated and other details arranged for the resumption of actitivies at the old Ohio mill of the Hooven & Allison Cordage Company, of Xenia, Ohio, which has been idle for several years. Henry Swan, a former employee of the company, has accepted the superintendency and is now in charge of the work of overhauling the machinery. New flues are being placed in the boilers and the engines repaired and placed in running order. It is the purpose of the company to place the mill in operation next week if arrangements can be effected therefor and the indications are that this expectation will be realized. While chief attention will be devoted to the manu-facture of binder twine it is understood that other kinds of cordage will be manufactured.

ANOTHER OUTLET FOR PULP

At an organization meeting of the Dayton Paper Bottle Com-President, Charles V. Crist; vice-president, William Watkins; secretary and treasurer, Howell C. Long.

It is the purpose of the company to manufacture sanitary paper milk bottles which are designed to take the place of the

ordinary glass bottles now being used by dairymen. This, it is expected, will insure more cleanly and sanitary receptacles for milk, reduce the spread of disease germs and render unnecessary the washing and returning process that now occupies a great deal of time on the part of the average dairyman. It will also provide a container that will be free from contagion on account of not being exposed to germ diseases in homes where such conditions exist.

MR. FLICKINGER ACQUIRES A NEWSPAPER

Announcement has been made here of the purchase of the Durham Sun, one of the leading daily papers at Durham, North Carolina, by Samuel J. Flickinger, who was formerly engaged in the management of the Dayton Herald, of this city. Mr. Flickinger was also for two years private secretary to Governor Harris.

Market Conditions in the Northwest

30

SPECIAL TO PAPER

APPLETON, Wis., Dec. 16—The general condition of the paper business in the Wisconsin district seems to be very seasonable. Orders are about what are ordinarily expected just before the holidays. The demand for newsprint is rather unusually strong, doubtless due to more advertising this year than customary. On the whole the market is fairly satisfactory.

Manufacturers of paper hereabouts are not permitting themselves to become unduly alarmed for the future of general business on account of what is now going on in the stock market. They are still disposed to believe that tariff revision of consequence will be confined to not more than two or three schedules, and schedules at that which will be able to bear it. They are welcoming the early special session which will expedite the work and hasten the moment when the country will know exactly what to expect.

Anchor Ice Causing Trouble

WATERTOWN, Dec. 16—The paper and pulp mill owners along the Black river valley have experienced considerable trouble during the past few days with anchor ice. The floating clusters of this ice, which have dotted the surface of Black river, have lodged on the water wheels of the mills and so clogged them that frequent shut-downs of the wheels were necessitated, while the anchor ice was cleaned off.

At Carthage the mills most troubled by this ice were the Carthage Tissue Paper Company's and the Carthage Sulphite Pulp & Paper Company's mills. Nearly all of the mills of this city operated by water power have had more or less trouble as this is the season of the year, when trouble is always experienced from anchor ice.

News of the Green Bay, Wis., District

[SPECIAL TO PAPER]

GREEN BAT, Wis., Dec. 16—The improvements begun this summer by the Northern Paper Mills here have been completed. No more work will be done this year, although a warehouse may be started in the spring. The company installed two Stirling boilers, equipped with Murphy automatic stoker attachment, and the equipment is working to the complete satisfaction of Superintendent John Fogarty. A building for the steam plant was erected of brick and concrete.

Business continues satisfactory among the local manufacturers of paper. As one mill manager expressed it, "the paper game looks more like a white man's game every day." The volume of business handled is growing larger and prices are steady.

Henry Mellor, who was superintendent of the Plover Paper Company's plant at Plover Wis., was found dead in bed at his home in Danbury, Conn. His remains were brought to Stevens Point Monday for interment and a funeral service was held at the Methodist Church. Members of the Elks Lodge carried the body to its last resting place.

Mr. Mellor was located at Plover for three years. He was an expert papermaker and for ten years was connected with mills in Holyoke. He went to Watertown, N. Y., in 1906, and he had lived at Danbury for only seven months. A stroke of apoplexy caused his death in that city at the age of sixty-four years.

Income Tax Assessments in Wisconsin

[SPECIAL TO PAPER]

GREEN BAY, Wis., Dec. 16—Papermakers will be hit by the income tax law in Wisconsin. Among the large payers of income tax will be the Wisconsin River Paper & Pulp Company of Stevens Point. This company has been assessed \$594 and the bondholders will be compelled to pay an equal amount, making the total assessment \$1,188. C. C. Babcock, of Neenah, is assessed \$197.33, and George A. Whiting, president of the Plover Paper Company is asked to pay income tax of \$261.74. The names of tax payers in Appleton with the amounts assessed follow:

follow:
Appleton Paper & Pulp Co., \$106.40; Appleton Coated Paper Co., \$255.72; Kimberly-Clark Co., \$625,33; Fiber Development Co., \$175.16; Riverside Fiber & Paper Co., \$110.89; Bond bolders same, \$180.00; Wisconsin Tissue Paper Co., \$3,711.36; Wisconsin Wire Works, \$298.26; Tuttle Press Co., \$1,052.46; Pulpwood Co., \$327.72; Patten Paper Co., \$1,767.18; C. S. Boye Paper Co., \$146.65; Fox River Paper Co., \$1,884.14; Interiagen P. & P. Co., \$196.20; Comb. Locks Paper Co., \$1,305.-77; Kimberly - Clark Co., Kimberly, \$5,146.80; Appleton Machine Co., \$270.

Debt of the Community to Paper Industry

[SPECIAL TO PAPER]

Bangor, Me., Dec. 16—There is no industry which, aside from the work and wages, that it confers upon its employees, does so much for the general betterment of communities in this state as the pulp and paper industry. But the other day was announced a gift of \$1,000 from the Hollingsworth & Whitney Company, of Winslow, to the New Central Maine Tuberculosis Sanatarium and this is but one of many. The Hollingsworth & Whitney Company at an expense of \$40,000 built the magnificent Y. M. C. A. building at Greenville which on December 20 celebrates its first anniversary.

The Greenville Y. M. C. A. is particularly intended for woodsmen and includes as part of its equipment an emergency hospital which has cared for about 100 patients during the past year. Formerly the sick or injured men brought out from the woods had to be conveyed 100 miles by train to obtain adequate hospital treatment. The hospital at Greenville has doubtless saved a number of lives. The establishment is one of great value to the woodsmen and the visitors thereat have averaged about 1,600 a month for the year of its operation.

At Millinocket the Great Northern has built a theater and also a public park and playground, while at Rumford the International has an employees' building which is one of the most pretentious of the business blocks of the place and is the club house of the pulp and paper workers.

THE HUGH J. CHISHOLM GIFT

In Portland the Edward Mason Dispensary has just been completed and will be opened in a short time. This is the gift of the late Hugh J. Chisholm, the gift being subject to the stipulation that an endowment fund of not less than \$50,000 be raised for the maintenance of the dispensary, only the interest of the fund to be so devoted in order that the principal should be kept intact.

The building is of brick and fireproof. The lower floor contains six rooms for patients and the second floor the main offices, two operating rooms, six rooms for patients, sterilizing room, baths and four dressing rooms. The building is so constructed that additions can be made when such are regarded as necessary.

BENEFACTIONS OF OTHER PAPER FIRMS

Practically all of the large paper concerns operating in Maine do everything in their power to improve the condition of their employees. A number of them conduct large boarding houses in order that the men may have good accommodations at a reasonable figure and they also assist in the amusements of the men, largely financing the baseball and other athletic teams. Thus the Eastern Manufacturing Company at South Brewer, the Hollingsworth & Whitney Co., at Winslow and the Great Northern at Millinocket are represented through the joint efforts of the companies and the employees by some of the best baseball nines in the state, teams that can hold their own with good minor league teams. The companies realize that the nature of the work calls men into small and rather isolated communities and they aim to do all in their power to surround the employees with conveniences and pleasures that ordinarily are confined to large communities. It is expensive but the concerns hold, and truly, that the money is well invested.

LOG CUT OF THE HOLLINGSWORTH & WHITNEY CO.

The Hollingsworth & Whitney Co., will cut from 30,000,000 to 35,000,000 feet of logs this winter which is about the customary cut of the concern. At the present time the conditions in the woods are not very favorable. Men are scarce and the snow came early before the ground was frozen, causing the woods roads to be practically impassible.

PAPER COMPANY FILES APPEALS FROM JUDGMENT

The suit of John Distern vs. the Great Northern Paper Company was argued December 13, in the Maine law court. Distern asserts severe injuries and blames the defendant company on the ground that he was sent into a place of great danger without proper warning. The action was brought under the employers' liability act and in the lower court the plaintiff received a verdict for the full damages claimed. The defendant files a general motion and exceptions to the refusal of the presiding justice to give certain instructions to the jury.

Walter B. Snow, publicity engineer, 170 Summer street, Boston, has recently increased his staff by the addition of Fred R. Lufkin, formerly of the instructing staff in electrical engineering of the Massachusetts Institute of Technology, and late assistant superintendent of lighting and wires of Brookline, Mass.

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Rumford Has a Chamber of Commerce

[SPECIAL TO PAPER]

RUMFORD, Me., Dec. 14—A chamber of commerce has been organized in Rumford with 74 charter enrollments, and Richorganized in Rumford with 74 charter enrollments, and Richmond L. Melcher has been chosen president. Among those on the board of directors are James W. Harris, superintendent of the Oxford Paper mill, Theodore Hawley, superintendent of the Continental Paper Bag mill, and P. Edward McCarthy, superintendent of the International Paper Company's local mill. The object of the chamber of commerce is to boom the town, and to secure new business enterprises for it as fast as may be done. Through the efforts of the men who are now organized into the Chamber of Commerce, and which formerly formed the new dissolved board of trade, neat folders bearing halftone cuts of various views of Rumford have been printed, together with certain facts concerning the town of interest to companies looking for an advantageous place to locate.

FACTS ABOUT RUMFORD

According to these folders, Rumford is located on the Androscoggin river, on the line of the Maine Central, 83 miles north of Portland, and twenty-five miles from the famous Rangeley Lakes region. Twenty years ago a wilderness, it is now a modern city with a population of 10,000. Millions of dollars have been invested in some of the largest paper manufacturing plants in the

world, thus giving employment to three thousand people.

There is 54,000 horsepower on the river at Rumford. Three canals, heads, 30, 40 and 100 feet, with a total fall of 180 feet; 125 square miles of lake storage.

Thirty-five thousand horsepower developed; 26,000 horsepower in use; no low water and no backwater or anchor ice.

Lands and additional power will be developed to suit. sites are here with hydraulic or electric power. There is an abundance of hard and soft wood for manufacturing purposes.

Rumford is the second largest freight tonnage center in the

State of Maine.

Good opportunities are awaiting anyone looking for a place to

locate a factory or a mill.

One million dollars has been expended during the past two years in the construction of the Aziscohos dam, thereby making the Androscoggin river one of the best regulated rivers for power and manufacturing purpose in the United States.

The Maine Central railroad extension now in the process of construction from Rumford to Quebec will greatly increase Rumford railroad facilities. Rumford will be and now is a common

billing point.

There are excellent educational privileges in both public and private schools. There are seven churches, a Presidential post office with mail carriers system, two banks with assets of \$3,000,-000.

It has the most modern electric power plant in New England,

as well as wonderful undeveloped natural resources.

The climate is delightful and the scenery unsurpassed. There are trading facilities unexcelled in Maine. Rumford is a young city composed of young and progressive men. Its surroundings are fertile farming lands and it has excellent markets.

The homes are of modern design and construction.

If you contemplate locating a factory or mill come to Rumford where developed and natural resources and advantages abound.

Supt. Andrews Returns with his Bride

[SPECIAL TO PAPER]

RUMFORD, Me., Dec. 14-Dura Bradford Andrews and his bride have returned from a short wedding trip and have taken up their residence at Strathglass Park, Rumford. Mr. Andrews, who is a Bowdoin graduate, came to Rumford a few years ago from Portland, his home, and entered the employ of the Oxford Paper Company. Last summer, upon the resignation of A. Martin Hamblet, who went to Salem to be connected with paper

mills in that vicinity, he was appointed to succeed him as super-intendent of the sulphite mill of the Oxford Paper Company. His wedding to Miss Zephi Elva Stephens, daughter of Mr. and Mrs. John E. Stephens, of Rumford, took place at the home of the bride last Saturday, the Rev. W. T. Carter of the Methodist church officiating. The bride wore a gray travelling suit and white hat, with burnt orange effectively used on the cuffs and collar of the coat and as trimmings on the hat. She was attended by Miss Marie Andrews, of Portland, sister of the groom, as her maid of honor, and Harold Andrews, of Portland, brother to the groom, was his best man.

The wedding was a simple one, with only immediate relatives in attendance. Directly following the ceremony, a wedding dinner was served to the guests. The bridal couple left on the after-noon train for a trip which was necessarily made brief owing to the fact that the groom must return directly to his duties at the

Death of Robert C. McQuillen

SPECIAL TO PAPER

Boston, Dec. 16-The funeral of Robert C. McQuillen, a member of the A. Storrs & Bement Co., wholesale paper dealers, Boston, took place last Wednesday from his late residence in Dedham.

There were floral tributes from the Boston Paper Trade As-There were floral tributes from the Boston Paper Trade Association and the New England Paper Jobbers' Association, the American Writing Paper Company, the B. D. Rising Paper Company, the Crocker-McElwain Company, the L. L. Brown Paper Company, the Eaton. Crane & Pike Company, the Taylor-Burt Company, the Hampshire Paper Company, the Carew Manufacturing Company, the Holyoke Card and Paper Company, the Rhode Island Cardboard Company, the Blackstone Glazed Paper Company, the Merrimac Paper Company, Linton Brothers & Co., S. D. Warren & Co., the Cook-Vivian Company the Baird & Bartlett Company, the W. H. Claffin Company and from the employees of the A. Storrs & Bement Co., and the Dedham Transcript, of which latter the deceased was the publisher.

ham Transcript, of which latter the deceased was the publisherRobert Comer McQuillen was a member of the wholesale
paper firm of the A. Storrs & Bement Company, of Boston. A
son of Hugh Henry and Mrs. Elizabeth Moore McQuillen, he
was born in Dedham January 31, 1865. He was graduated from
Dedham high school in 1881, and at once went to work with the
Storrs & Bement Company. Storrs & Bement Company. In a few years he was made a

member of the firm.

After the death of his father, Mr. McQuillen took charge of the Dedham Transcript, which paper his father had conducted for years and later of the Standard.

Makes Paper and Finds White Clay

BOGALUSA, La., Dec. 16—The plant of the Southern Wood Distillers and Fiber Company is now in operation, the experimental run having been made recently. The plant will make wrapping and bag paper from yellow pine refuse, and is the latest industry to be brought here by the Great Southern Lumber Company.

On the first day's run, which was experimental, the plant turned out approximately 25 tons, which tested 205, as against the ordinary 100 test paper. Two thicknesses of paper we tured, the quality of which surpassed expectations. Two thicknesses of paper were manufac-This mill is built on a larger scale than is at present required for its output, the intention being to add two more units to its plant. While a sewer to be used as an outlet to the mill refuse was being dug, at a depth of 12 feet a strata of white clay 14 inches thick and 2,000 feet long was struck. The clay had all the appearance of value.

Mill Accountants Meet in Chicago

A few Western members of the American Paper and Pulp Association held an expert "school of instruction," at the Blackstone Hotel, Chicago, during the present week for the discussion

of the cost question.

In speaking of the meeting a mill man is quoted in *The Paper Trade* as follows: "The object is commendable. The association has been laboring for some time to educate us to the real backbone cost of production—the cost from the raw material to the way. Now we are trying to systematize. Like most other mill men, I know about what I can afford to fill an order for—what it will cost me and what reasonable profit I should have. But my knowledge is limited to my field of operation solely. I want to learn if I can how my competitors operate—what economies they enforce that I do not."

R. A. North Swings Around the Circle

R. A. North, who is well and favorably known among paper manufacturers as the representative of the R. J. Dowd Knife Works, Beloit, Wis., and as the inventor of many successful paper mill appliances, was in New York for a few days this week paper min appliances, was in Jern John John John Franchis acquaintances and getting orders for the North Beater Filler, which has proved so efficient in beater work. Mr. North reports that business during the year has exceeded his expecta-tions, the popularity of the new filler resulting in a great extension of its use in the larger mills.

C. R. McMillen, who resigned his position as secretary of the Union Bag and Paper Company last year to go with the United Publisher's Corporation as vice-president of the Class Publishing Company, has severed his connection with the publishing firm and returned to the U. B. & P. Co., as vice president and sales-manager. manager.

Status of Wood and Pulp in Germany

N INTERESTING statement of the condition of the Ger-A man paper and cellulose industry is contained in a report published in the *Hamburger Fremdenblatt* for November 23, 1912. It is beginning to be realized in Germany that supplies of wood suitable for the manufacture of pulp are not inexhaustible and in the introductory paragraph of the report fears are even entertained of a regular "wood famine." The following is nearly a literal translation:

In our last report on the condition of the paper industry it an our last report on the condition of the paper industry it was intimated that the problem of supplying the most important material of the papermaking industry, the wood, had begun to attract increasing attention, and today it may be stated that this anxiety is reaching out over constantly widening circles, the more nearly the large, stored up old supplies of the mills approach to exhaustion. In trade circles there is already mention of a

regular "wood famine.

In Germany, the official forestry department sales of wood for the coming winters' cutting, have already begun, and increases in prices have been developed that exceed all expectations. The wood buyers for the cellulose plants resort to the most remote forests to obtain the wood which is steadily growing scarcer. Establishments in southwestern Germany are reported to have purchased wood at abnormally high prices in porthern Boundaries. purchased wood at abnormally high prices in northern Bavaria, subject to heavy transportation charges. The situation is the same in the country that is at present the world's chief source of supply for wood, Russia. The northern lands (Norway and Sweden), by reason of the inadequate supply furnished by their own forests, must import pine wood in constantly increasing quantity, so that the inquiry for Russian wood, owing to the com-petitive demand from all countries, has very materially increased. In Austria too, the latest offerings brought much higher prices and it may serve to illustrate the present position to state that a south German cellulose mill obtained the award at a bid 27 per cent higher than that of last year. Thus, in all the wood producing regions of the earth, there has been a veritable contest to ing regions of the earth, there has been a veritable contest to buy in this raw material, and it has even reached the hitherto barely noticed rejected wood, so that in order to work out a balance, there must, as a result, be an increase, up to 20 per cent in the previous prices of cellulose, mechanical pulp and consequently of paper, if we are to avoid disturbance in conditions.

The cellulose manufacturers have already announced 10 to 15

per cent increases in prices for next year's business and they are being allowed because the comparatively small number of producers are unanimous in their intention to make their customers pay the increased cost price of wood. On the other hand, the demand for cellulose is at present so urgent and considerable that all the German, as well as all the foreign cellulose plants,

are taxed to their utmost capacity.

are taxed to their utmost capacity.

For mechanical pulp, the demand in Germany was just as lively; on the world's markets, there appeared to exist a small falling off in the demand and a slight decline in values. The great mills that are producers of papers containing woodpulp, during the past few years have almost universally gone into the supply of their own demand, with the aid of great magazine grinders, while the small trade pulp plants, mostly working with water power, have been favored in their output this summer by the excellent water conditions and can collect simplies for the the excellent water conditions and can collect supplies for the winter period of scarcity of water and stuff. In consequence of this tendency on the part of the managers of the large plants to render themselves independent of the market and the fluctuating supplies of the various pulp plants and to produce their own raw material, a peculiar conflict has arisen, the commercial pulp manufacturers fearing to be deprived of their outlet having decided in many instances on the installation of their own paper mills, to use the output of various pulp producers and at the same time provide a permanent outlet for their own product. Whether this tendency, so contrary to the principles of wholesale business, will prove successful in practice, will be revealed by next year's developments.

The paper mills are of course scriously affected by the conditions prevailing in the raw material branches and it is with mixed feelings that we contemplate the heavy increase in the cost of raw materials. To this moreover must be added that the cost of labor even in the most remote districts-although a large number of manufacturing plants are located in distant mountain

ions and places far from the trade centers—has undergone a arial increase, it being a fact that the ancient patriarchal us between employer and employed are rapidly vanishing. **se between employer and employed are rapidly vanishing.

**be organized labor movement is steadily developing.

**expenses are constantly increasing and the coal, iron,

**felt and other industries, for the most part syndiannouncing further increases in prices. The natural ry progressive industry is in the direction of increased he shifting of expenses from themselves where higher w materials have been fixed. Thus, on all sides of the dry, there arises a cry for higher prices culminating. stry, there arises a cry for higher prices, culminating and for an equalisation of increased personal expenses. nufacturers of paper of similar quality, have entered upon the only practicable way, mutual combination for the purpose of promoting efforts to improve the by no means brilliant general position, and their efforts to raise prices to a higher level, have been in part successful. Thus the manufacturers of pergamine have gradually brought about an increase in prices and have quickly been followed by the manufacturers of kraft paper. Even the south German wrapping paper manufacturers, who produce, in part, widely different varieties, have, in a common agreement, established higher prices for all wrapping ρapers, to go into effect at once. Also the mills producing paper free from wood, have started a movement toward a means that will make the upward movement in prices possible. For the plants in this class it is difficult, owing to the very widely ramified interests, to hit upon the middle line on which all the concerns, some in entirely different parts of the country, can For this reason, first of all, an association is to be formed, that will take over the entire paper industry, with the adoption of common selling and paying conditions. The main thing is, no decision has as yet been reached whether a syndicate; with a common sales headquarters, or an "Association," with strict bylaws and close supervision, should be formed.

The Destruction of the Canadian Tamarack

The almost total destruction of the tamarack or larch, which took place throughout Eastern Canada almost thirty years ago, was caused by an insect, the larch sawfly. It appeared again was caused by an insect, the larch sawny. It appeared again about eight years ago, and in its spread westward it is repeating its former devastation on the younger tamaracks. The appearance of a comprehensive account of this insect entitled "The Large Larch Sawfly, with an account of its Parasites, other Natural Enemies and Means of Control," by the Dominion entomologist, Dr. C. Gordon Hewitt is noted by the Canadian Engineer, which says that Dr. Hewitt, has studied the life-history, which says that Dr. Hewitt, has studied the life-history, which is an appropriate of control of this injurious sawful heath is Expense. habits and means of control of this injurious sawfly, both in England and North America. In England, it was found that the natural enemies, especially parasitic insects, effectively gained control of outbreaks of the insect. Other natural enemies were mice and birds and a system of bird encouragement was started on a large scale.

The devastating spread of the sawfly in North America was due to the comparative absence of the natural means of control. Several important species of parasites new to science were discovered and have been studied and described. To increase the number of natural enemics of the sawfly, attempts are being made to introduce and establish in Canada parasites which were dis-covered in England and which appeared to control the pest there.

Scientific Tiering with a Revolvator

This is the title of a 20-page catalogue just issued by the New York Revolving Portable Elevator Co., Jersey City, N. J.

It shows by actual photographs how it is possible for two men and a Revolvator to stow more goods in a warehouse than can seven men working without one. It further points out how the Revolvator enables the men to stow goods near the ceiling and thus utilize space often wasted, and why the revolving base permits of the use of much narrower aisles, thus saving additional

The advantages of the revolving base are amply illustrated by a series of photographs showing the Revolvator in different posi-

Many recent improvements to the Revolvator are explained and the photographs showing the Revolvator being used for tiering packing cases, bales of raw stock, hogsheads of tobacco, rolls of paper, parts of machinery, etc., are extremely interesting, as the photographs are taken in prominent concerns and show the Revolvator in actual use.

Anyone interested in reducing the cost of handling material of whatever kind, should receive a copy of this booklet, as he will undoubtedly receive many pointers on the economical handling of material. Copies may be had by addressing the company

at the address given.

Calendars for 1913

The first of the calendars for 1913 to reach PAPER comes from the first of the calendars for 1913 to reach Paper comes from the Eustwood Wire Manufacturing Company, Belleville, N. J. It is of large size, measuring 20 x 28 inches and the divisions of the Month are printed in bold type in red and black on a yellow back pround, a most effective combination, which makes it a carl word easy to consult and an ornamental wall fixture. Each lears an advertisement of the wire cloth, cylinders, dandies, bears alves, fittings, etc., manufactured by the firm. bears an anithering, etc., manufactured by the firm. Digitized by Google

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Adjustable Speed Paper-Machine Drive



Westinghouse Paper-Machine Motor—125 hp. coupled to main shaft. Speed regulation, 50 to 350 R. P. M., by push buttons in the machine room.

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THE speed of the paper machine is under the complete control of the operator. He can start and stop the machine, and obtain any desired speed, by merely pressing control buttons. speed will remain constant until intentionally changed.

The highest possible speed for each kind of stock can therefore be obtained and delays in handling the machine are reduced to a minimum, thus making maximum production possible. Since the speed, once fixed, remains rigidly uniform, the quality of the stock does not vary.

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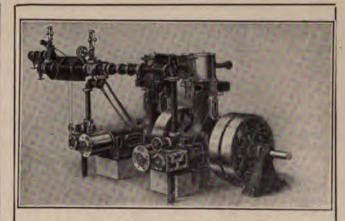
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A New Paper Mill Drive

THE latest development in paper mill engines is the American Four-Cylinder Design with which a speed range of 10 to 1 may be obtained. This means that your engine can be connected to the shafting through one pulley and that no shut-down is necessary to change the speed of the rolls and the thickness of the paper. Furthermore, the four cylinder arrangement means absolutely constant turning effort and therefore even thickness of paper no matter what the engine speed.

This new engine has already been installed in dozens.

the engine speed.

This new engine has already been installed in dozens of plants and has met with the widest approval and success. For further details, write today for our special bulletin "American Paper Mill Engines."

American Engine Company

46 Raritan Ave., -Bound Brook, N. J.

Power Consumption in Beating

Concluded from page 18

[Here, the editor of the *Papierfabrikant* explains that he has placed Mr. Beadle's comments on Mr. Rehn's criticisms before Mr. Rehn who has supplied the following notes, references to which are made in the foregoing text of Mr. Beadle's article.]

- 1. I have not asserted in my article that the mode of washing influences the softness and the consumption of power when beating. Indeed I doubt it. On the contrary, I said, and it is really obvious, that rags preliminarily washed in the digester require less power in the pulper, because a part of the work of washing, which must otherwise take place in the beater, is already done. The work in the beater is correspondingly shortened thereby, and a saving in power results; I therefore had to give details in my article as to the preliminary treatment of the rags.
- 2. It is not perfectly true as Mr. Beadle says that in my diagrams the power consumption always diminishes with continued beating and with an unaltered position of the rolls. Such diminution, of course, occurs at the beginning of beating, so long as the fibers are still being shortened. On the other hand in a portion of Rehn's diagram one can distinctly observe an increase in power consumption towards the end of the beating, with such unaltered position of the rolls.
- 3. That short-fibered half-stuff required less power for the circulation than long-fibered has also been stated by me; in addition, however, as stated above under 2 the consumption of power depends, above all, on the greasiness of the pulp. A beater charged with greasy pulp is more viscous than one charged with the same quantity of non greasy pulp. The same then occurs as in the case of a thick and thin charge, namely greater consumption of power for the circulation for the former than for the latter. Therefore it is also explained that the consumption of power for the circulation increases in the second half of the beating process, thus the contrary to that stated by Mr. Beadle.
- 4. This opinion can only recently have been arrived at by Mr. Beadle, for in his article hs says: "Would it not be more economical, etc."
- 5. Mr. Beadle believes that according to the beating process described by me the beaters would be less productive because they are charged thinner. It follows clearly, however, from my table that the duration of beating calculated per 100 kg. pulp diminishes—viz., 2 mins, in diagram 6b and 17 mins. in diagram 7b. Thus the contrary is the case. The beaters have a greater capacity when the new mode of beating is employed.
- 6. This statement as generally expressed does not agree with what I have found in my experiments. Of course I have said that it has been found that when the size is added just when beating begins the power consumption at the working corner becomes "a trifle higher" due to the prolonged period of beating. On this question however I have not yet made absolutely exact experiments; on the other hand it was exactly determined in my experiments that quite a considerable saving in power can be effected by first bringing the pulp to the requisite shortness, then adding the size and then continuing beating. It has indeed been proved that by the addition of the size the pulp can much more readily be beaten to a greasy condition but only with great difficulty be made short, whereas beating becomes prolonged if the size be added when beating begins.

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It will successfully reclaim and grind sulphite and ground wood screenings into a marketable pulp, which can be sold at a profit

HIS MACHINE is thoroughly practical and durable from all points of view and fully guaranteed to do the work claimed for it. The machine will run for years without repairs of any kind, barring accidents. It is easily operated and now running successfully in a large number of the leading mills, making from eight to ten tons of refined sulphite screenings as well as ground wood. It requires no expert and can be bandled with the cheapest kind of labor. What we claim for this machine is:

First, a saving of 50 per cent in power over any machine now in use on this grade of material. Second, 100 per cent more capacity than any machine on this grade of material. Third, it requires less floor space and no special foundation, as the machine is mounted on a heavy cast iron base, thoroughly balanced and can be set on any ordinary solid mill floor and will work successfully.

These machines have been thoroughly tested by practical men and have been in successful operation in some of the leading mills for over two years, a number of which we refer to in the following letters. The machine is fully covered by Letters Patent, and built in two sizes. Write for particulars and names of many leading mills where it is in use.

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Paper and Pulp

17 BATTERY PLACE, **NEW YORK** 171 QUEEN VICTORIA ST., LONDON

ALSO

Sydney Brisbane Mexico

Wellington Cape Town Buenos Aires

on Melbourne Bombay Havana C

THE MARKETS

NEW YORK, December 17, 1912.

There has been no falling off in the demand for ground wood and under prospects for a continued large movement of supplies of newsprint and wrapping, a further appreciation in values on the former is looked for. Grinding mills are running full capacity to meet the requirements of consumers and in most instances deliveries are being made promptly. Surplus stocks of ground wood, according to reports from a number of plants, are heavier than they have been for some time past. Prices rule firm, however, and recent transactions were at our quotations.

FOREIGN AND DOMESTIC PULP

A firm tone pervades the market for both bleached and unbleached pulp. Supplies for prompt and forward deliveries are held with increased firmness under good inquiries and heavy withdrawals on outstanding contracts. Offerings of bleached sulphite by cable, represented fair lines for delivery, principally over the next six months, but owing to buyers and sellers being yet apart in their views regarding prices, bookings of contracts, on a large scale, are still held in check to some extent. Withdrawals on unexpired contracts continue heavy and arrivals, which covered sizable lines, are passing into direct consumption. Prospects relative to the future strength of the market continue favorable based on the general strong statistical position of pulp the world over. According to Farmand, the market for cellulose is steadily advancing; for strong sulphate kr. 142 has been obtained and makers are holding out for kr. 150 for strong sulphite; while easy bleaching sulphite is tending towards kr. 160 f.o.b.

Sulphite, foreign-		
Bleached, ex dock . 2.80	04	3.25
Unbl'h'd, ex dock .2.05		
Sulphite, domestic-		
Bleached2.70		
Unbleached 2.15	@	2,30
Soda, domestic-		
Dissahad 9.95	a	2 25

Soda, foreign— Unb'd Spruce, ex		
dock 1.90 Bleached, ex dock . 2.55	00	2.15
Imported Kraft pulp1.95	@	2.10

BAGGING, ROPE, ETC.

Firmness of values, covering the entire list of materials is apparent but no further market changes have been effected since our last report. The demand continues steady and the sales have embraced parcels in various positions at previous prices. Arrivals during the interval have included sizable invoices of various materials, which have been consigned to mills for direct consumption. Cable advices from primary points note steady prices under a seasonable demand and limited stocks. Spot supplies are not heavy and sellers continue to adhere to former prices on most varieties.

Gunny, No. 1-	3
Domestic 1.15 @ 1.20	1
Foreign	1
Light Burlap 1.15 @ 1.20	2
Mixed Bagging 85 @ .90	-
	1
Wool Tares, light 1.10 @ 1.12	2

Wool Tares, heavy 1.15 @	1.20
Foreign Manila Rope 2.37-@	
Domestic Rope 2.37 @	2.50
New Burlap Cut-	1.85
Flax Waste washed 1.80 @	

IMPORTED RAGS

In response to increased inquiries for certain varieties a firmer trend of values has developed but no quotable changes have come to the surface. Offerings by cable involved a general selection of rags, in various positions at about former limits and orders booked covered fair lines. Under moderate stocks abroad and a good demand there for home consumption, the former strength and upward tendency of values are well sustained. Locally, values are maintained firmly on the former basis.

German tons.			0	1.80
Light Pri	nts	 1.80	88	2.00
New Mix				

Old Linen. White 3.75 @	5.25
Old Linen, Gray 2.75 @	
German Colored Cot- tons1.50 @	1.60
Old Linen Blues 2.37-6	4.50
Dark Colored Cottons 1.20 @	9 1.30

DOMESTIC RAGS

A fairly large volume of orders covering all kinds of rags, has been booked during the interval since our last report. In several quarters it is expected that higher prices will set in with the approach of colder weather, as already a further reduction in spot supplies, has tended to stimulate buying on a broader scale. Toward the close a firmer tone developed with values slightly advanced on some descriptions.

vanced on some descriptions.	
New Shirt Cuttings, No. 15.75 @ 6.5	No. 1 Whites.
No. 1	20 Soiled Whites,
New Shirt Cuttings,	Soiled Whites,
No. 2 3.75 @ 4.3	
Fancy Shirt Cuttings 3.90 @ 4.0	
New Blue Cottons2.50 @ 3.0	
New Dark Cottons 1.00 @ 1.1	
New Light Seconds 3.25 @ 3.5	
New Black Cottons 1.15 @ 1.2	25 Hard Black Ca

OLD PAPERS

Continued firmness of values is reflected by an active buying inquiry and a large movement of supplies of the lower grades of paper. Spot stocks are somewhat limited and holders views are firmer in the anticipation of an early advance in values in view of a steady decrease in the available supply of the lower grades of paper.

rades of paper.			
No. 1 Hard White			Extra New Manila
Shavings2.45	@	2.60	Outtings
No. 2 Hard White			New Manila Cutting
Shavings2.10	00	2.15	No. 1 Old Manila
No. 1 Soft White			No. 2 Old Manila
Shavings1.75 No. 1 Colored	@	1.80	New Box Board Chip
No. 1 Colored			Bogus and Mil
Shavings	@	.85	Wrappers
No. 2 Colored			Strictly Overissu
Shavings	0	.60	News
Magazine Flat Stock .85			Folded News
No. 1. Crumpled			No. 1 Mixed News
solid Ledger Stock 1.65	(A)	1.85	No. 1 Mixed Papers.
edger Stock 1.40			Common Papers
No. 1 White News1.25			
	-		

TWINES

The usual falling off in the volume of new business incident to the approach of the holidays is being felt and orders placed during the interval have been small. Business in the nature of deliveries on outstanding orders continued brisk; manufacturers in most quarters are busily engaged in their annual stocktaking and plants are being shut down to undergo a general overhauling, preparatory to the spring demand. Prices remain steady to firm in sympathy with advancing markets for the raw materials.

Sisal Hay 9 @ Sisal Lath Yarn 7½ @ Manila Rope 13 @ Manila Rope No. 2 .11 @ Manila Rope No. 2 .11	14	Jute Twines, 41/4 & 6 91/4 Marline Jute, 41/4 . 91/4 Marline Jute, 6 91/4 Marline Jute, 7 9	00	10
Jute Rope	8 12 11	Marline Jute, 8 & 9 . 8 1/4 B. C. Hemp, 18 17 1/4 B. C. Hemp, 24 17 B. C. Hemp, 36 16 1/4 B. Hemp, 18 18 1/4	99999	9 1814 18 1714 1914
Jute Twines, 1812½ @ 1 Jute Twines, 2412 @ 1 Jute Twines, 3611½ @ 1	13½ 13 12½	B. Hemp, 24	0	1814

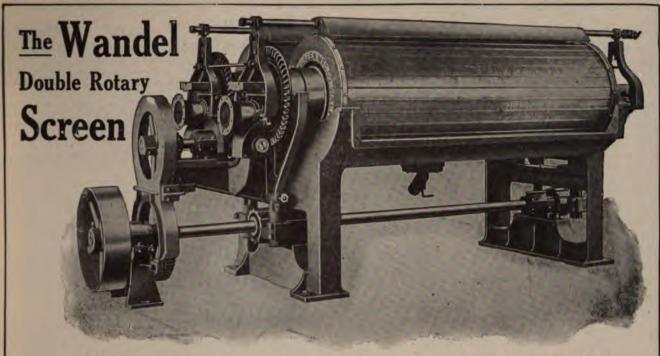
CHEMICALS

Conditions in the market for papermaking chemicals have remained quiet during the interval. Under a steady movement of supplies into channels of consumption and diminished spotstocks,

Continued on page 38

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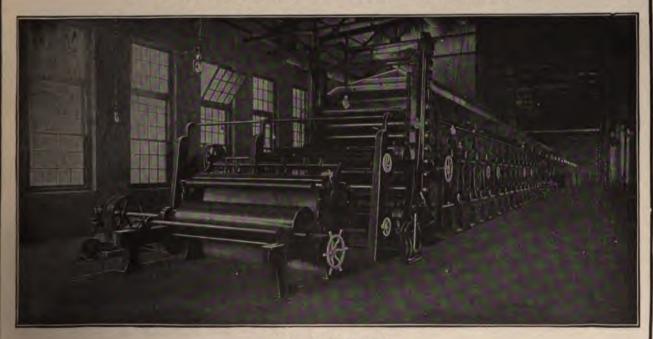
CAPACITY: 20 tons News, 20 tons Book, 15 tons Manila, 12 tons Writing Bond and Ledger

The WANDEL SCREEN meets the needs of Paper Manufacturers for an EFFICIENT, ECONOM-ICAL AND DURABLE SCREEN. ¶It is the greatest money and trouble saver on the market and most of the leading paper manufacturers in this country have adopted it. Write us for full details.

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The Markets

Continued from page 36

quotations on bleaching powder are firmer but unchanged. Holders as a rule are asking 1.35 cents and upward as to terms of sale and numerous small sales are reported at this range. Bookings of new orders for brimstone continue inactive, but under a liberal movement of supplies, in the nature of withdrawals on outstanding contracts, the market closed steady at \$22 and upward per ton, as to terms of sale. A steady consuming demand is in progress for caustic soda and this coupled with a good call for supplies on outstanding orders, sustains the general firmness of values which range from 1.60 cents and upward for 60 per cent, as to terms of sale. Alum is meeting with a seasonable inquiry at steady prices ranging from 15/8 cents and upward and 23, cents and upward for ground and powdered on the spot as to quantity, respectively.

Imports—Rags and Paper Stock

AT NEW YORK

Week Ending December 14, 1912

Hudson Trading Co., Str. Caroline, Dunkirk, 90 bs. old bagging. Castle, Gottheil & Overton, Str. Etonian, Antwerp, 7 bs., 194 bs., 184 bs. rags, 83 bs., 381 bs. new cuttings, 45 bs. waste paper, 250 bs. bagging.

Atterbury Bros., by same, 243 bs. rags.

Atterbury Bros., by same, 245 bs. rags.
Hudson Trading Co., by same, 317 bs. bagging.
Salomon Bros. & Co., by same, 518 bs. rags, 136 bs. new cuttings.
Pelix Salomon & Co., by same, 117 bs. old rope, 94 bs. rags.
Parsons Trading Co., by same, 231 bs. bagging.
Perkins, Goodwin & Co., by same, 18 coils old rope, 77 bs. rags.
P. Garvan, Inc., by same, 10 bs. new cuttings.
Castle, Gottheil & Overton, Str. Konigin Luise, Bremen, 97 bs.

bagging, 125 bs. rags.

Atterbury Bros., Str. Louisiane, Havre, 459 bs. rags. Castle, Gottheil & Overton, Str. Main, Bremen, 38 bs. rags.

Atterbury Bros., Str. United States, Copenhagen, 350 bs. rags. Stratford Oakum Co., Str. Caledonia, Liverpool, 18 cls. old rope.

Stratford Oakum Co., Str. Caledonia, Liverpool, 18 cis. old rope.
Atterbury Bros., Str. Noordam, Rotterdam, 244 bs. paper stock.
Parsons Trading Co., by same, 78 cs. printing paper.
Perkins, Goodwin & Co., by same, 72 coils old rope.
A. Katzenstein, by same, 17 bs. new cuttings.
Stratford Oakum Co., by same, 24 bs. old rope.
Castle, Gottheil & Overton, Str. Friederich der Grosse, Bremen,
39 bs. old rags.

Katzenstein by same 34 bs. rags.

A. Katzenstein, by same, 34 bs. rags.
Salomon Bros. & Co., by same, 38 bs. rags.
American Mfg. Co., by same, 56 bs. bagging.
Marx Maier, Str. Campanello, Rotterdam, 250 bs. old burlap bagging, 683 bs. rags, 123 bs. new cuttings, 38 bs. old hemp

rope.

A. Katzenstein, by same, 75 bs. old bagging. Paul Berlowitz, by same, 180 bs. rags.

Salomon Bros. & Co., by same, 135 bs. old bagging.

Castle, Gottheil & Overton, by same, 187 bs. rags. E. Butterworth & Co., by same, 177 bs. rags.

Pelix Salomon & Co., by same, 69 bs. rags, 66 bs. new cuttings,

49 bs. bagging.

P. Garvan, Inc., Str. Michigan, Antwerp, 81 bs. new cuttings. P. Garvan, Inc., Str. Minnetonka, London, 124 bs. new cuttings.

Chemicals

J. L. & D. S. Riker, Str. Cedric, Liverpool, 25 bxs., 100 drs. caustic soda, 55 bbls., 90 csks. bleaching powder.
 J. W. Higman & Co., Str. North Point, Fowey, 691 csks. china

day.

Perkins, Goodwin & Co., by same, 136 csks. china clay. L. A. Salomon & Bros., by same, 147 csks. china clay.

Miney & Ca., by same, 80 csks. china clay. Mines & Munger, by same, 82 csks. china clay.

J. L. Smith & Co., by same, 100 csks. china clay.

Hamill & Cillespie, by same, 50 bags, 91 csks. china clay. C. P. Knowles & Co., by same, 721 csks, 511 tons (in bulk) china

day.

Woodpulp

1. Anderson & Co., Str. United States, Copenhagen, 6,090 bs. 7141 1/1141

Bulkley, Dunton & Co., by same, 2,000 bs. (250 tons).

V. Entrepworth & Co., by same, 816 bs. (102 tons).
V. & Pierce, by same, 960 bs. (120 tons).
V. M Sergeant & Co., by same, 200 bs. (25 tons). Felix Salemen & Co., Str. Finland, Antwerp, 110 bs. (22 tons).

AT BOSTON

Castle, Gottheil & Overton, Str. Marquette, Antwerp, 232 bs. waste paper.

P. Garvan, Inc., Str. Bohemian, Liverpool, 184 bs. old rags P. Garvan, Inc., Str. Lancastrian, London, 36 bs. new cuttings.

P. Garvan, Inc., Str. Pretoria, Hamburg, 29 bs. new cuttings. P. Garvan, Inc., Str. Pretoria, Hamburg, 29 bs. new cuttings. Atterbury Bros., Str. Askehall, Rotterdam, 182 bs. old bagging. Atterbury Bros., Str. Zyldyk, Rotterdam, 235 bs. old bagging. P. Garvan, Inc., by same, 141 bs old bags; 23 bs. new cuttings. Hudson Trading Co., Str. Numidian, Glasgow, 154 bs. rags. P. Garvan, Inc., Str. Iberian, Manchester, 56 bs. new cuttings. Salomon Bros. & Co., Str. Francisco, Hull, 598 bs. flax waste, 98

bs. bagging

Price & Pierce, by same, 250 bs. (50 tons) woodpulp.

AT BALTIMORE

Hudson Trading Co., Str. Main, Bremen, 387 bs. old rags. Castle, Gottheil & Overton, Str. Amsteldyk, Rotterdam, 306 bs.

old bagging. Castle, Gottheil & Overton, Str. Georgian, Antwerp, 89 bs. bagging, 164 bs. old rags, 80 bs. new cutting Marx Maier, by same, 15 bs. new cuttings, 103 bs. bagging.

AT NEW ORLEANS

Castle, Gottheil & Overton, Str. Alexandrian, Liverpool, 380 bs. waste paper, 200 bs. old rags.

AT NEWPORT NEWS

Scandinavian-American Trading Co., Str. Mexicano, Hamburg,

2,480 bs. (280 tons) woodpulp. M. Gottesman & Son, by same, Christiania, 1,624 bs. (250 tons) woodpulp.

AT PHILADELPHIA

Leonard B. Shoenfeld & Co., Str. Sardinian, Glasgow, 128 bs.

waste paper. Castle, Gottheil & Overton, by same, 91 bs. ,237 bs. rags.

W. T. Moore, by same, 293 bs. paper stock.

H. & A. Allen, by same, 125 bs. waste paper.
F. B. Vandergrift & Co., by same, 120 bs. waste paper.
Atterbury Bros., Str. Kentucky, Copenhagen, 800 bs. (100 tons) woodpulp.

Price & Pierce, Str. Alberta, Ginne, 250 bs. (50 tons) woodpulp. P. Garvan, Inc., Str. Zyldyk, Rotterdam, 71 bs. old rags. Castle, Gottheil & Overton, Str. Montana, London, 146 bs. rags. Scandinavian American Trading Co., Str. Jadera, Hamburg, 300

bs. (30 tons) woodpulp. Castle, Gottheil & Overton, Str. Haverford, Liverpool, 120 bs. waste paper.

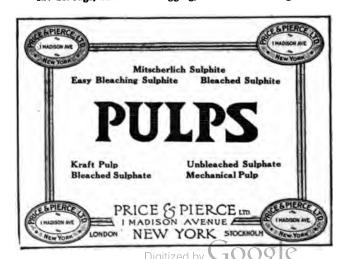
M. Gottesman & Son, Str. Georgia, Fiume, 427 bs. (61 tons) woodpulp. Leonard B. Shoenfeld & Co., Str. Manchester Corporation, Man-

chester, 226 bs. waste paper, 19 bs. rags, 35 bs. bagging, 49 bs. new cuttings.

Alfred Clegg & Co., by same, 92 bs. cotton waste. Millar Waste Co., by same, 17 bs. cotton waste. Scandinavian American Trading Co., Str. Prinz Adalbert, Ham-

burg, 340 bs. (50 tons) woodpulp. Felix Salomon & Co., by same, 400 bs. (50 tons) woodpulp.

Felix Salomon & Co., by same, 400 bs. (50 tons) woodpulp.
Price & Pierce, by same, 160 bs. (20 tons) woodpulp.
Castle, Gottheil & Overton, Str. Betania, Hamburg, 325 bs.
(65 tons) woodpulp, 20 bs. rags, 54 bs. new cuttings.
Price & Pierce, by same, 500 bs. (100 tons) woodpulp.
Felix Salomon & Co., by same, 3,150 bs. (450 tons) woodpulp,
427 bs. rags, 221 bs. old bagging, 63 bs. new cuttings.



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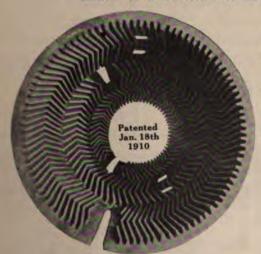
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Papermaking in Silesia

In a report published in Daily Consular and Trade Reports for November 9, Consul Herman L. Spahr, of Breslan, speaks of the effect of the drought on the paper industry of Silesia. The the effect of the drought on the paper industry of Silesia. The paper industry had an unpleasant year, as the rising price of coal made more costly the use of reserve steam power rendered necessary by the scarcity of water. Moreover, it was impossible to shift to buyers the increased expense due to forced shipment by rail intead of waterway. Only a small portion of the woodpulp consumed is, he says, supplied by Silesian conifers, and the necessary by the says of the say sary wood must be imported from Austria and Russia. Austria, however, using the medium of railway rates, is encouraging the retention of its wood for the domestic industry. Rosin from America and straw were also very expensive, and in general prices received for the various papers were still less than in the previous

received for the various papers were still less than in the previous year, although trade was brisker.

In the quantity of paper and cardboard manufactured Silesia leads all other Prussian Provinces, although its output is second in value, because water conditions are unfavorable for making high-quality paper. Of the 663 German establishments, Silesia has 39 paper factories, employing 6,000 workmen, and 21 cardboard factories, with 1,200 workmen. In addition, there are 9 cellulose mills, with 2,150 workmen, 1 strawpulp mill, and 74 wood-grinding mills, with 1,890 workmen.

One factory, while adopting woodpulp manufacture, has never ceased to produce handmade paper from rags. Only one purp mill sells its entire product; the others are partners or owners of paper mills, where they convert all or the greater part of their

mill sells its entire product; the others are partners or owners of paper mills, where they convert all or the greater part of their cellulose into fine wrapping papers, grease-proof papers, and tissue, envelope, and parchment paper. Some of these wrapping-paper mills are widely known in Europe and America, while for fancy and lace papers the world markets look to this district. A specialty of the Breslau colored-paper manufacture, called "metal paper," is much desired in Japan and elsewhere

German Hopes of Free Trade in Paper

In a report on the commerce of Northeast Prussia, U.S. Consul William C. Teichmann, Stettin, has the following comment to make on the paper and woodpulp industries of his district:

Stettin's paper, woodpulp, and cellulose industries suffered somewhat from the drought during the summer and competition kept down prices, but business was active in these lines. Rosin kept down prices, but business was active in these lines. Rosin used as a raw material in paper manufacturing went up in price considerably during the latter part of 1911. A few years ago rosin was delivered in Stettin for \$1.90 per 100 kilos (220.46 pounds), but now \$7.50 is asked. Notwithstanding the good yields of 1911, rosin is expected to rise still higher in price in 1912, a trade feature which will be of advantage to the large American export trade in this line. This may eventually force higher prices for paper products as well, although competition tends to keep them on low levels. Great hopes were aroused among the German paper and woodpuln export interests when the duties the German paper and woodpulp export interests when the duties on these products in the proposed reciprocity arrangement between Canada and the United States were abolished and the efforts of the German Government to secure a like removal of American duties on similar German products are mentioned with approval in the annual reports of local manufacturers. Three large concerns with their plants located near Stettin paid from 3 to 7 per cent dividends in 1911, notwithstanding the drawbacks mentioned. This demonstrates their competitive power in foreign markets and explains their hopes of entering the market of the United States more formidably than at present.

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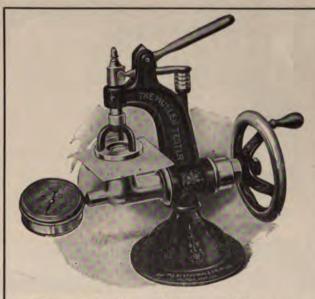
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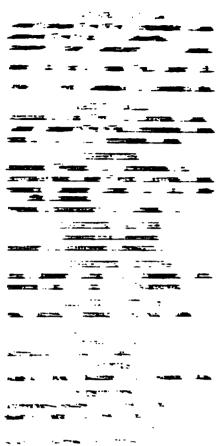
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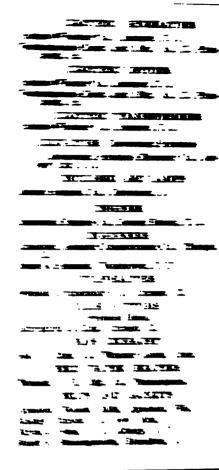
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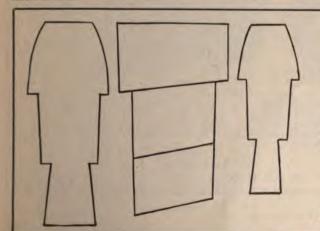
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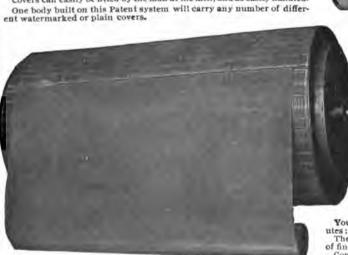


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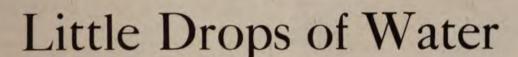
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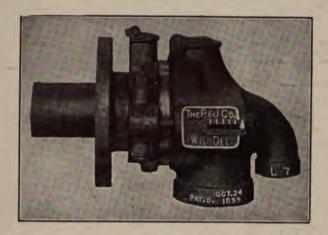
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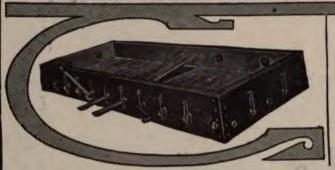
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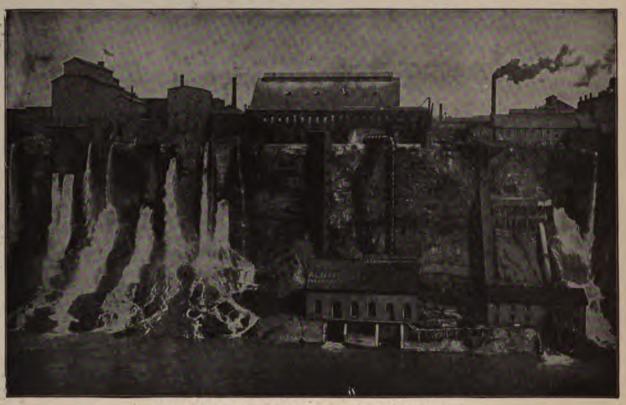
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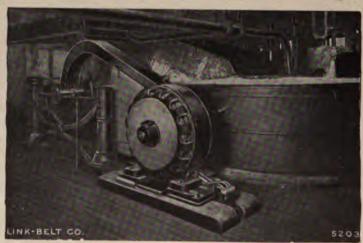
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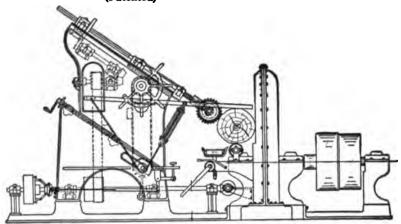


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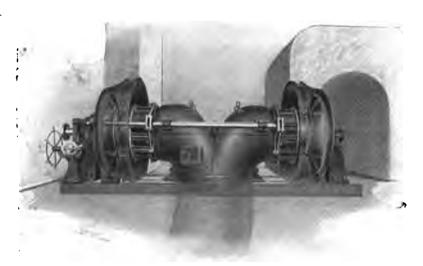


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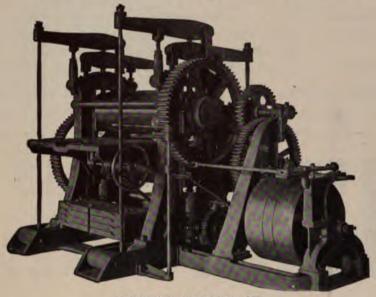
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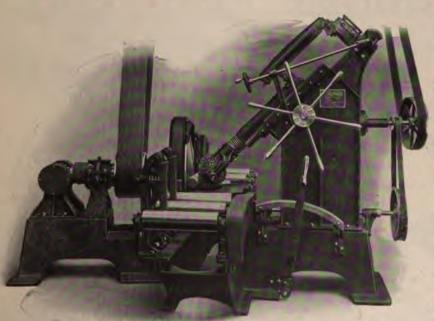


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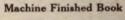
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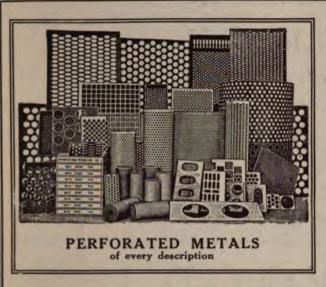
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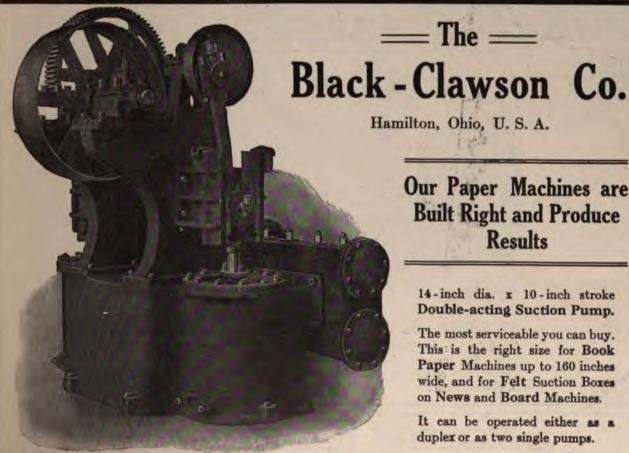
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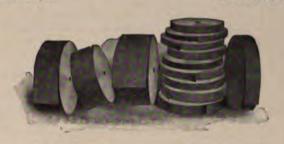
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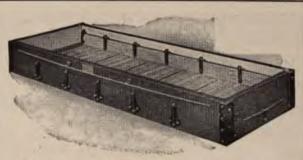
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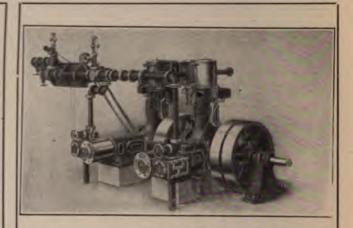
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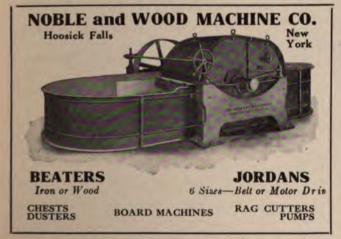
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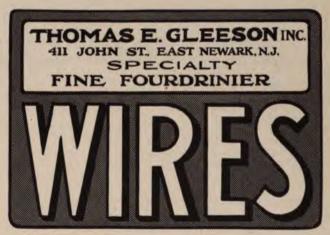
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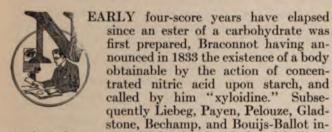
Vol. X

DECEMBER 25, 1912

No. 2

Noninflammable Celluloid Compounds

The Efforts to Make Esters of Cellulose—An Historical Review of Processes



vestigated more completely the chemical and ballistic properties of "explosive starch meal," "nitramidine," or "pyramidon"-names at that time pyroxam, embracing the various products obtained by the ni-tration of commercial starch. Schönbein in 1845 or 1846 succeeded in nitrating fibrous cellulose (cotton), and made the (then fanciful) prediction that his "ex-plosive cotton wool" would soon entirely supersede gunpowder in warfare—a prediction that is rapidly being realized.

The investigations on acetylation communicated by Paul Schützenberger in 1862 were followed three and eight years later by the presentation of Memoirs to the French Academy upon the acetation of carbohydrates, in which is described the acetation of fibrous or normal cellulose. While it is evident that the products obtained by Schützenberger showed serious degradation of the cellulose molecule coincident with acetylation, yet it nevertheless must be admitted that he thereby laid the foundation for the non-explosive and relatively non-inflammable esters of cellulose, as direct commercial competitors for the longer known inflam-mable nitrates. Girard, Liebermann, Franchimont, Vignon, Skraup, Cross and Bevan, Ost, Schwalbe, Eichengrün, and others, have elaborated the mechanics of the acetylation process, and investigated the intimate relations of hydrocellulose formation in the presence of esterifying agents.

The first patent for an acetylated derivative of cellulose was granted to Cross and Bevan in 1894, since which time the art has ramified to a large number of industries, as attested by the nearly nine hundred pat-

the first a serious drawback to advancement has been the cost of materials for production. Acetylchloride was soon discarded on account of the cost, but the necessity for the presence of both glacial acetic acid and acetic anhydride in the acetylizing mixture, has never brought the cost of the finished product to a point where it could successfully compete in price with the cellulose nitrates. Although the price of acetic anhydride has been materially reduced in the past few years, the cost of the production of cellulose acetates has still been in excess of that of the nitrates.

ents the writer has collected, and which have been issued in the past eighteen years on this subject. From

This fact undoubtedly influenced investigators in their search for other esters which, while at the same time noninflammable and non-explosive, could still be produced at a figure admitting of direct commercial competition with nitrocellulose. The propionates, butyrates, acetonitrates, and mixed esters of the acetic acid group, all required the use of relatively large amounts of the anhydride corresponding to the ester produced, and which was the most expensive constituent in the esterizing mixture. The least expensive anhydride in comparison to the corresponding acid which is applicable is perhaps acetic anhydride, which is at present about twice as costly as acetic acid.

However, about ten years ago formic acid began to be produced in large quantities and at a (then considered) reasonable cost, and it is significant that coincident with the appearance of large quantities of concentratd formic acid as a commercial commodity, the industrial possibilities of formylated cellulose began to receive the serious attention of chemists. The fact that in the formylation of cellulose, no counterpart of acetic anhydride—the most expensive constituent of the acetating mixture—is required in their preparation, is, in the writer's judgment, the principal factor for the great activity displayed in this field at the present time. It appears quite probable that in the near future the cellulose formates may be produced in unlimited amounts commercially, at a cost at least not in advance of the present cost of nitrocellulose, starting with the same source of cellulose. Digitized by GOOGLE

¹ From a paper read before the Society of Chemical Industry by Edward C. Worden, Ph. C., M. A.

The cellulose formates may be prepared by many of the methods applicable to acetic ester formation, and from hydrocellulose or other modified cellulose without resort to esterifying agents, cellulose hydrate and especially the waste from artificial silk manufacture. Denitrated nitrocellulose filaments and viscose silk waste have been found especially suitable. As with the corresponding acetates, much time and experimentation has been devoted to the selection of suitable hydrolyzing agents, and the conditions under which they yield most dependable results. For the formylation of natural cellulose (cotton), the most important advocated have been sulphuric acid, zinc chloride and sulphuric acid, gaseous hydrochloric acid, the halogens, combination of hydrochloric and sulphuric acids in the form of sulphuryl chloride, pyrosulphuryl chloride, and chlorosulphonic acids. Ethyl sulphuric acid may also be included. The cellulose, if desired, may be dyed before formylation. The phospho-formates of the Vereinigte Glanzstoff Fabriken are claimed to be especially valuable when combined with certain plasticinducing bodies as triphenyl phosphate.

Berl and Smith have shown that cellulose monoformate may be prepared by the action of substantially absolute formic acid in the presence of five per cent by weight of sulphuric acid, but they were unable to obtain tenchnically useful esters. Woodbridge found that when formic acid of specific gracity 1.20 is substituted for the anhydrous compound no formate results, while on the other hand, where the most concentrated acid is employed, filter paper dried at 100° C. is as efficient a starting material as the cellulose prepared according to the method of Girard. In his preferred method 18 Gm. of dried filter paper is treated with 100 Gm. of formic acid of specific gravity of 1.22, and 10 Gm. sulphuric acid, the whole being kept at 30 to 35° C. for 16 hours. After thinning with more formic acid and filtration of the viscous mass from unconverted cellulose, the mixture was precipitated in a large bulk of water, washed to neutralization and dried at a low temperature. product thus obtained was found to be soluble in formic acid or zine chloride, insoluble in methyl, ethyl, or amyl alcohols, acetone, chloroform, carbon tetrachloride, ethyl acetate, amyl acetate, aniline, or dilute sulphuric, nitrie, or hydrochloric acids. The insolubility of the formic ester in acctylene tetrachloride is a qualitative distinction and separation from cellulose acetate. Saponification yielded 23.1 per cent of formic acid, the monoformate requiring 24.2 per cent.

The recuperation of formic acid from a mixture with sulphuric or other mineral acid, presents difficulties, and the solution of the cellulose is subjected to sufficiently spendy decomposition owing to the presence of the comparatively large amounts of energetic mineral acid. Where the ultimate product is required to possess the maximum strength, as when the material is used for artificial silk filaments or continuous film formation, these objections have weight. The Nitritfabrik Akt. Core, have devised a process for rendering cellulose solable in formic acid in order to obtain formylated celltime whitions applicable for spinning, by first forming hydrocellulose, washing free from inorganic acid and drying, when the dry product may be directly formylated by solution in formic acid and zine chloride, with the elimination, the patentees claim, of the decomprestum phenomena referred to above.

Deming prefers dry hydrochloric acid gas, his method hong to saturate 3 Gm. of filter paper in 100 Cc. of ferming and which has been previously saturated at room temperature with dry hydrochloric acid. The product after four hours is precipitated, and found to be slowly whithe in fermic acid, slightly soluble in pyridine, and

insoluble in the other reagents which dissolve the cellulose acetates. If allowed to remain in the acid liquid twenty-four hours before precipitation, the ester first formed is partially saponified to a modified cellulose. Instead of hydrochloric acid, the halogens among themselves have been found suitable in the hands of the Actien-Gesellschaft für Anilin Fabr., chlorine, bromine, or iodine monochloride, iodine trichloride, iodine monobromide, or bromine chloride being specified.

According to the patented process of the J. P. Bemberg Aktiengesellschaft, gaseous hydrochloric acid gas is preferable because the process takes a more regular course and less secondary products are formed, the method being to introduce 2 to 4 parts of dry hydrocloric acid into 100 parts of 98 to 100 per cent formic acid, after which 20 to 30 parts of dry cellulose is gradually added to the mixture. After the lapse of several hours, assisted by repeated stirring, the cellulose passes substantially into solution, the temperature being kept between 15° and 18° C. meanwhile. At the completion of the formylating process the mass is precipitated in a large bulk of water, washed until neutral and air dried. Thus prepared, the formylcellulose forms a white powder soluble in formic acid, zinc chloride solution, and partially in dilute acetic, hydrochloric, and sulphuric acids.

The energetic action of sulphuric or hydrochloric acids may be considerably modified without materially decreasing their efficiency by combining the two, sulphuryl chloride with or without zinc chloride being used. In the latter method, chlorides of sulphuric acid such as SO₂OH.Cl, SO₂Cl₂, and S₂O₅Cl₂ are employed, as indicated in the following example. One hundred parts by weight of cellulose—previously preferably rapidly dried artificially at 105°—are soaked with 500 parts or more of formic acid of 98 to 100 per cent strength and 20 to 30 parts of sulphuryl chloride, solution being complete in one or two days. Where zinc chloride is used, either sulphuryl chloride or chlorosulphonic acid is specified in addition to formic acid. The white voluminous product obtained by precipitation of the formylated mass in a large volume of water, is soluble in formic acid and in zinc chloride solution, and is distinguished from the formylcellulose of the older art by being soluble in pyridine. The patentees state that upon evaporation of a solution of formylcellulose prepared in the above described manner, a translucent, flexible film remains.

In the method of Dreyfus cellulose esters may be produced even in the cold by the action of formic acid on cellulose or its derivatives in the presence of a small quantity of an aliphatic or aromatic ester of sulphuric acid, as ethyl-sulphuric acid. Where the reaction is carried on in the absence of solvents, gelatinous products are obtained, whereas in the presence of solvents, viscous products result.

The Vereinigte Glanzstoff Fabriken have shown that the cellulose hydrates, which may be obtained in large quantities and at a low price in a form, for example, of denitrated nitrocellulose threads, lustracellulose filaments (cuprammonium process), or viscose, as refuse from the cellulose artificial silk industry, are highly adapted for serving as raw material for formylcellulose manufacture. They merely introduce the refuse material into formic acid of 95 to 100 per cent strength, and warm the mass gently until the cellulose passes into solution, when the fluid may be directly utilized by forcing through spinnerets into artificial filaments. The solution of the waste may be effected at the ordinary temperature, is accelerated by warming to 40 to 50 C., while at still higher temperatures formylation proceeds more rapidly with the formation of thinly viscous

solutions of impaired strength, due probably to further hydrolysis of the cellulose hydrates and the formation of more highly and complexly hydrated formylcelluloses. The best criterion of the product which it is desired to obtain, is the gloss, transparency, and elasticity of the

films prepared from the solutions.

If desired, the cellulose may be dyed before formylation, thus producing various shades, the algol, indanthrene, rosanthrene, helindon, katigen, immedial and similar classes of dyestuffs, being stable against the acid agents employed in the formylating process. For example, 200 parts of cotton dyed with indanthrene are formylized with 100 parts of formic acid and 3 to 10 parts of sulphuric acid, a dark blue solution being obtained from which the deep blue formylcellulose can be precipitated out and washed in the usual manner with water without detriment to the color. It is soluble in the usual solvents, and blue films may be produced from the solutions. The process may be carried out in an analogous manner by the use of other suitable dyestuffs.

A careful survey of the historical development of the cellulose nitrates, will show that the broadening of their technical utilization has occurred simultaneously with the discovery of new solvents, or the adaptation of known solvents to new uses. It was lack of suitable solvents which hindered Parkes, Spill, Barnwell and Rollason, Mennons, Cutting, Pierson, McClelland, Kendall and Trested in the development of the nitrocellulose art, and the appreciation of the value of the solvent over the nitrocellulose that laid the basis of success of the thermoplastic cellulose nitrates typified by celluloid. An analogous condition is being found at the present time in attempts to perfect the cellulose acetate industry. Energy is being focussed on the discovery of suitable liquid and solid solvents, bodies which, like camphor, are thermoplastic and relatively nonhygroscopic. In this direction the cellulose ester art is at a standstill awaiting the advent of a solvent which will have the desirable properties imparted to the cellulose nitrates by camphor. Resorcinol diacetate, benzophenone, acetated castor oil, acetin, camphor, thymol, chloral hydrate, are solid or semi-solid bodies which have been proposed for this purpose, but their defects are many.

The liquid solvents for cellulose acetate such as acetylene tetrachloride alone or with methyl alcohol, triphenyl phosphate in solution, benzyl benzoate, methyl formate, chloroform, acetone, chloral, chloranisol, chlorhydrins, chlorobenzyl alcohol, creosote, diacetone alcohol, epichlorhydrin, mannol, naphthyl acetate, nitrobenzene, nitromethane, pentachlorethane and alcohol, benzyldihydropulegone, chloral alcoholate, acetyl alkyl aniline, naphthol acetate, chlorpalmitic acid, ethylenechlorhydrin, acetodichlorhydrin and alcohol ethylene chloride and alcohol, ethyleneacetochlorhydrin, are unsuitable solvents or gelatinizing agents for the cellulose formates. The utilization of the formylated celluloses, therefore, is inhibited by too few solvents, or solvents whose field of usefulness is too narrow. It was with the hope to increase the number of useful solvents for formylated cellulose, that the descriptive and experimental work outlined in the latter portion of this paper was undertaken. If the known solvents and plastic-inducing bodies suitable for the cellulose acetates were equally applicable to the corresponding formates, the technical field for the latter esters would be materially widened.

The Vereinigte Glanzstoff Fabriken have found lactic acid to be an excellent solvent for formylated cellulose, Waite having previously discovered the action of this acid on the corresponding acetates. The Vereinigte

dissolve 10 parts of artificial silk waste in about 100 parts of formic acid, then add about 50 parts by weight of 80 per cent lactic acid, the excess of formic acid being recovered by distillation in a partial vacuum at a temperature not exceeding 40° C., and recovered for reuse. The viscuous syrup which remains may be drawn into threads, or allowed to solidify into a flexible, transparent mass. If it is desired to remove the acid reaction, dialysis with water is resorted to. It is self-evident that inasmuch as cellulose dissolves in formic acid to form a formylated derivative, the latter after purification is soluble in formic acid. The Internationale Celluloseester Gesellschaft have patented a similar process in which formylated cellulose is rendered plastic by the combined action of formic and lactic acids. Instead of lactic acid, use may be made of phosphoric acid, the commercial syrupy orthophosphoric acid having proved most suitable. Best results are said to be obtained by mixing 1 kilo of approximately 99 per cent formic acid with 1 kilo of commercial phosphoric acid of about 84 per cent strength and 200 Gm. of degreased, slightly bleached cotton stirred in. After remaining for a few hours the cellulose is converted into a slightly colored viscous solution, which can be worked into fibers, threads, and films. In order to make this product plastic a solution of the cellulose formate or cellulose phosphoformate in formic acid is diluted with amyl acetate, amyl formate, methyl alcohol, ethyl alcohol, or a mixture of hydrocarbon and alcohol, the ester immediately separating as a voluminous but coherent mass which falls to the bottom of the vessel. The supernatant liquid may now be withdrawn, the precipitate washed, there finally remaining a semi-solid, gelatinous coagulum, which is transparent and readily miscible with triphenyl phosphate to a hard, solid, plastic mass. Ellis has described combinations of formylated cellulose with chloral, castor oil, amyl lactate, and methyl acetone as being commercially valuable.

George W. Miles, in his patented processes for the partial hydration of acetylated cellulose, greatly extended the usefulness of the cellulose acetates by the observation that in the acetylation process leading to the formation of substantially normal cellulose triacetates, if water be added to the acetylizing mixture—or materials which would induce hydration—the acetated cellulose after a time lost its solubility in chloroform and arrived at that stage of hydration represented by incipient solubility in warm chloroform, at which time it would be found soluble in acetone of 99 per cent or better, and at the same time be found soluble in a large number of fluids in which the normal acetated cellulose will not dissolve. It is the attempt to apply this same principal to the cellulose formates, which form the subject matter of the experimental portion of this paper, and although the results were negative in character, they are recorded in detail in possible assistance to others.

PREPARATION OF FORMYLATED CELLULOSE

A grass bleached tissue paper was converted into hydrocellulose by the method of Girard after extraction with hydrochloric and hydrofluoric acids to remove small amounts of iron and silica, the final ash being 0.0016 per cent. Thus prepared it was a white, rather soft, somewhat friable mass, which when extracted with boiling water, yielded no water-soluble residue. In the last series of experiments a denitrated nitrocellulose was used, being prepared by the nitration of the same grade of filter paper by a nitrating mixture containing 21 per cent of nitric acid and 63 per cent of sulphuric acid at a temperature of 42° C., the product being entirely soluble in acetone, ether-alcohol, amyl

acetate, ethyl acetate, and in crude wood spirits. Denitration was effected with warm ammonium sulphide solution, the denitrated product giving no color reaction with diphenylamine, and 0.0031 per cent of nitrogen in a nitrometer. Two hundred Gm. portions of modified cellulose were placed in convenient glass receptacles, and one kilo of chemically pure formic acid of 99.1 per cent strength added, both cellulose and acid being at room temperature. The mass was vigorously stirred for about one hour in order to thoroughly disintegrate the hydrocellulose in order that the subsequent formylation might occur with maximum uniformity. The hydrocellulose (modified cellulose) had then been broken up to an indistinguishable mass which was in no ways transparent, and without the evolution of appreciable heat. Sixty Gm. of fused zinc chloride, previously powdered and ground to a paste in 100 cubic centimetres of absolute formic acid, was next added, and the mass stirred continuously during a period of four hours, the maximum temperature being 42° C. expiration of this period the modified cellulose had become partially transparent, very viscous and heavy and substantially homogeneous. The formylating mass

cent, the major portion of which precipitated upon cooling and did not produce a flexible or coherent film.

Partial hydration of formylated cellulose.—After clarification of the solution containing formylated cellulose in the reacting mixture, by filtration under pressure, 10 per cent of the weight was withdrawn and precipitated, washed and dried as above stated. The remaining 90 per cent by weight was divided into nine equal portions by weight, and to each was added varying amounts of water diluted with an equal volume of absolute formic acid added to minimize proneness to precipitation upon the addition of water. The containers were then kept at varying temperatures for different lengths of time, precipitated in water, washed to neutrality and dried. The fractions thus obtained were submitted to solubility determinations in order to see to what extent the partial hydrolysis (if any) had affected the solubility. In none of the fractions obtained could any physical difference be noted, except, perhaps, those submitted to higher temperatures, or longer contact with the water, were somewhat softer to the feel.

The subjoined table records the per cent by weight of formylated cellulose which was dissolved in tetrachlor-

Temperature 35° C.

Water Sample	Tetrachlorethane solubility.		Chlo	Chloroform solubility.			Acetone solubility.			
added.	number.	5 hrs.	10 hrs.	20 hrs.	5 hrs.	10 hrs.	20 hrs.	5 hrs.	10 hrs.	20 hrs.
Cc.		per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent
0	b	3.2	4.1	5.7	2.2	2.1	2.8	1.9	4.4	6.2
2	c	2.8	3.9	6.1	2.0	8.1	2.2	3.9	4.8	5.4
' 4	d	3.1	3.8	5.8	2.9	3.3	1.9	2.8	4.7	6.2
6	e	5.1	7.2	7.7	4.0	4.2	6.0	8.0	3.8	5.9
`8	f	3.1	6.4	7.0	4.2	4.8	5.7	8.5	4.1	5.4
10	g	6.2	6.0	7.4	4.0	4.5	5.5	8.9	4.2	5.8
12	h	7.4	8.9	8.7	5.0	7.7	7.2	4.4	6.0	6.2
14	i	7.7	9.2	9.5	6.8	6.6	7.4	5.8	6.6	6.3
16	j	7.9	7.8	9.2	7.9	10.1	10.4	6.7	8.9	9.7

was then left at rest 24 hours, during which time the mass became less viscous and nearly transparent, being of a straw-yellow color. It was filtered in the cold through asbestos in a Gooch crucible to remove translucent pellicles of incompletely dissolved material. A portion precipitated by pouring in a thin stream into a large bulk of water and thoroughly washing to a neutral reaction and freedom from zinc salts, gave a practically white, voluminous, amorphous powder without odor or taste, insoluble in water, ethyl alcohol, amyl alcohol, ethyl acetate, amyl acetate, soluble 4 per cent in acetylene tetrachloride at 45° C., readily soluble in formic acid, soluble 18 per cent in glacial acetic acid at 45° C., soluble 48 per cent in pyridine at room temperature which, however, continued to become opalescent and deposit, even after repeated filtrations through hardened filter paper. The above solubility determinations refer to one Gm. formylated cellulose in 5 Cc. fluid. At room temperature, glycerin dissolved 1.3 per cent, acetin 3.7 per cent, quinoline 4.8 per cent, collodine 3.9 per cent, pentachlorethane 1.1 per cent, tetrachlorethane 5.3 per cent, dichlorethylene 1.1 per cent, and epichlorhydrin 2.2 per cent. From none of these solutions could flexible and tenuous films be obtained. The dissolved portion in each instance had the same formic acid content as the major undissolved portion, thus indicating no selective solvent action. The yield was 126 per cent on the weight of the dried modified cellulose, saponification giving 27.1 per cent formic acid, as against 24.22 per cent for a cellulose monoformate.

A sample of 10 Gm. extracted in a Soxhlet extractor with 99.5 per cent acetone gave a solubility of 10.0 per

ethane, chloroform, and acetone, all chemically pure and free from water, when one Gm. of formylated cellulose is rotated for five hours with 5 cubic centimetres of solvent, the material filtered, and a measured portion evaporated to dryness. Usually 5 Gm. of formylcellulose and 25 Cc. of solvent were used. Column I. shows the volume of water, which after dilution with an equal volume of concentrated formic acid was slowly added with much stirring to one-tenth the weight of the formylating mixture of 200 Gm. of modified cellulose, and is equivalent to approximately 20 Gm. of modified cellulose. Five, ten, and twenty hours express the time which the containers were heated at 35° C. in a thermostat with the quantities of water stated in Column I.

The results obtained indicate, in general, an increase in solubility with the amount of hydrating water added, and the increase of time of the hydration period. The differences obtained are not sufficiently marked or concordant, in the majority of instances, to admit of profitable deductions.

Workmen's Compensation acts have been passed by the States of California, Illinois, Massachusetts, Michigan, Nevada, Rhode Island, Kansas, New Hampshire, New Jersey, New York, Ohio, Oregon, Washington and Wisconsin. The principle of compensation involves in the main, the following points: Payment for injuries or death, irrespective of fault or negligence, except where caused by wilful misconduct or other aggravation of responsibility; the benefit payable bearing a relation to the earning capacity of the person injured, subject to minimum amounts and not intended to give full compensation; the payment usually in installments; denial of compensation for brief periods, to eliminate the large number of trifling injuries. but provision for medical treatment; abrogation of the right of action at common law except where the fault of the employer is aggravated.

Water Paritication for the Industries



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"emulsifiers," or injectors. From the emulsifiers the water is sterilized by passing through towers. The absorption of ozone, and its accompanying sterilization, occurs partly in the emulsifiers and partly in the towers. From these towers the water passes away over cascades, which remove the last traces of free gases and ozone into the storage tanks, and from here it is ready for the town supply. Much research is needed whereby ozone could be used for other purposes than purifying water.

PURIFICATION OF FEED WATER FOR BOILERS

The greater the work put upon a boiler to do, the more should be the attention paid to the quality of its water supply, in order that it may continue its course without stay or hindrance, except being cleaned out at suitable times. To do this all boiler waters should be specially treated before entering the boiler, and thus save the formation of crusts," and consequent excess expenditure of fuel.

The chief idea is that the water may not form any incrustations or sediments of lime and magnesia salts. The deposits usually consist of carbonates of iron and magnesium, sulphate of lime, chloride of sodium, organic matter, fatty acids from lubricants, from which in former years the author has found ground for interesting research in connection with boiler incrustations taken from steamships in the Thames. Incrustations are bad heat conductors, and consequently cause large consumption of coal, and if allowed to increase, without systematic cleansing, are the cause that often leads to explosions and other serious consequences.

The methods used to prevent the formation of "scale" or "crusts" may be divided into two classes, or headings—(1) mechanical methods; and (2) chemical methods.

The best way to keep a boiler as free as possible from sediment under the first method is by forcing air through it and greasing the inside with petroleum. A good way is to add petroleum to the water, and this directly avoids the formation of scale. Heavier oils are not to be recommended, as they tend to form fatty acids on dissociation at the high temperature and pressure at which boilers are worked. Fatty acids form a thick coat on the sides of the plant, and in time eat into and corrode the metal.

The general method is to use a mixture of soda and lime. The soda precipitates the lime salts as insoluble carbonate of lime, and the lime in a slaked form, or lime water, decomposes the bicarbonates. If the water be heated it can be purified by soda alone, when calcium sulphate is precipitated and the bicarbonates are decomposed by the heat. It is the custom nowadays to purify feed waters before they enter the boiler, and only such water is clear and free from sediment should be used. If such treatment of boiler feed waters were systematically done, and put under proper continual chemical control, the cost of fuel for heating would be greatly lessened, and the life of a boiler would be no anxiety to the chemical engineer.

It is a good recommendation that the works chemist should include in his daily routine of ordinary tests outside the laboratory that of testing the water in boilers for acidity or alkalinity, and have a certain standard to go by. Glue gases also for CO₂ must not be forgotten. In this way a very good record is obtained as to the working of a bolier and its saving cost in fuel.

The management of the boiler in a works is of primary importance, as without a good pressure of steam always at call, chemical processes cannot be expected

to work profitably, and this is obvious to all manufacturers of sulphuric acid by the chamber process.

PURIFICATION OF TRADE WASTE EFFLUENTS

The wide area that this section of purification covers will not permit of much being said on the subject, so it is intended to deal with only those substances that are purely inorganic, such as effluents from bleaching powder works, breweries, iron pyrites waste, tanneries, and brine works.

Where bleaching powder is made the drainage from the exhausted bleaching tanks consists of hypochlorous acid, and that from the neutralizing tanks contains sulphate of soda. By mixing, or running together, the two tanks, and adding lime, a precipitate is formed, and after settlement the calcium chloride in solution is recovered, as it is injurious to fish life. The drainage from bleaching powder works can be used for seasoning timber, and for disinfecting main drainage. But if it is to be purified, this can be done by treatment with alkali waste, and then oxidizing with a little nitric acid.

The drainage from breweries varies considerably, but it chiefly comes from the "coppers," or boiling vats, consisting of hop refuse and soluble nitrogen compounds. The water hardly requires chemical treatment, being so dilute, but in case of necessity a mixture of lime and alumina is recommended.

Pyrities pits waste contains ferrous sulphate and sulphuric acid in the drainage water. By treatment with oxide of lime, crude gypsum could be obtained in the usual way.

The refuse water from tanneries contains decomposed animal matter. Sulphide of lime, and arsenic from the use of sheep dips, may also be found. In this case clarification with lime and sulphate of iron, and filtration afterwards, is to be recommended.

The refuse of the Leblanc soda process, when dried, could either be used as a manure or worked up into other products. The waste effluents from the ammonia soda process contains much calcium and sodium chloride, and from these constituents hydrochloric acid and free chlorine can be produced.

English Grinding Stones Used in Scandinavia

ENGLAND is the source of supply of the stones used for grinding pulp in Northern Europe. The stones, according to a note in *The Super-Calender* for December are made of English sandstone, since the rock formations of Norway and Sweden do not contain sufficient grit to operate satisfactorily. Occasionally some of the mills use stones from Germany, but not often. The standard size apparently is 27 inches face, by 54 inches diameter.

It has been found that the average life of a stone in those countries is about a year and a half; some of them naturally longer. The risk of breakage is great, especially when the replacements are made during the winter season, due to the freezing of moisture in the stones. In order that this may be obviated, the stones are often kept in an even temperature for a year or more, so that they may be perfectly dry before being used.

At present, mill owners in Scandinavia are carefully considering an artificial grindstone, invented in Germany. The alleged advantages are that it is evenly tempered throughout; that it wears and grinds evenly and uniformly; that it is practically unbreakable.

The Science of Management in Selling

By J. GEORGE FREDERICK

Editor of "The Efficiency Magazine"



IS now known that selling is considerably more of a concrete science than old-time sales managers and salesmen have believed it. This is largely due to the fact that the application of broad education to the modern commercial problems has driven out the exaggerated ego which was the prominent part of salesmanship in the past.

One definite cause of the greater application of science to selling has been that the extension of markets throughout the broad length of the land has made it necessary to have intelligent planning from a central source, and to have it done with the utmost pains and anaylsis. In the old days, salesmen were simply given samples, a circle was drawn around a sales territory and they were told to go and produce results. The result was that frequently these salesmen believed that their own peculiar personal genius was wholly responsible for any success they had, and that they possessed a species of mysterious "black art" in selling.

Manufacturers soon learned two things about this old method: (1) that any time such salesmen became dissatisfied, they could seriously injure the business, because they got it more on a personal basis than on the merit of the goods; and (2) that they had no accurate measurement whatever of the ultimate possibilities of a given piece of territory, nor a real estimate of

the measure of a salesman's ability.

This was due, too, to the fact that salesmen rendered no reports; that prospects were not recorded at the home office; that the relative "tensile" strength of a given piece of territory (meaning its respective power, or consumption possibilities or competitive situation, was not known. This sort of condition simply had to break the houses which were content with a moderate amount of success, but they are now being replaced in many cases with newer concerns with newer and more scientific methods who make selling a real science.

The principles of the science of selling are most remarkably like the principles of the science of management. Such things as standard practice, adequate and complete records, economy of motion, central planning, prize and bonus plans of stimulation, are things which have a large share in the modern science of selling, and are destined to have a larger share still. More and more large firms are adopting the plan of direct routing, by this means aiming to scientifically manage the activities of the salesmen and bring them to a point of maximum effectiveness.

It is, of course, quite well understood that the personal factor is perhaps a larger element in selling than in shopwork, for the reason that the salesman deals with human mind and not with inanimate things. Nevertheless, the personal element is constantly growing lesser in volume as the rank and file of business men become more accustomed to the science of purchasing, which eliminates altogether the personal element and deals with merchandise alone.

Many there are who still claim you can never eliminate the personal element nor even mitigate it. But the facts are constantly moving the other way. It used to be common for the house to have one official

¹ Industrial Engineering.

"souse." It was his job to take over all the bibulous prospects and drink them under the table.

Now the science of selling is direct analysis—getting the article right; choosing the market by thoroughgoing investigation and study; sensibly and clearly putting the arguments; and then you can train and put to work an average type of salesmen, and succeed.

A vital point is to have thorough trade records, both from salesmen and from every other authoritative source. Facts on marketing conditions are of utmost importance and it is now more and more the practice to use special marketing investigators to study and analyze conditions affecting the specific line of trade.

There must be system in the sales manager's office. He must have sufficient up-to-date information to coach and post salesmen correctly. He must train salesmen to see the things that may to them look small, but which to the man in the home office reflect very important conditions.

A summary of some of the data that a sales manager should have in his office might be as follows: (1) List of dealers handling the goods (divided into classes); summary of their rating, credit, three-year record of orders, shipping and routing directions, record of salesmen's calls, complaints, special remarks (class of customers served, location value of store, appearance of store, type of stock carried, competing brands handled and pushed).

- (2) List of prospective dealers, with dates of calls and remarks.
- (3) Distribution sales maps by states or sections (blue pins for dealers carrying stock, red for prospects, green for other dealers, with numbers on the pinheads to indicate rating or product handled).

(4) Salesmen's route maps, with routes "strung" to show journeys and jumps.

- (5) Order records, filed geographically, also by products or sizes,
 - (6) Salesmen's records, orders, trips, etc.

(7) Expense records.

- (8) Factory and shipping records.
 (9) Form letter and follow-up record.
- (10) Cessation and complaint record.
- (11) Competition data.

(12) General consumer marketing data (crop reports, wealth, population, sectional variations, etc.).

To be as thoroughly scientific as some concerns, the country should be divided into sales "blocks" so that an exact means of comparison and easy reference is afforded. There should also be available for quick reference figures on the average sale of competitive lines in various sections, and the amount of business secured in comparison in those places. In considering these statistics, however, a fair comparison must be made on the amount of advertising used, like window displays, painted and electric sign, etc.

Such accurate data make possible quick and correct judgments on the question of routing. It is still the practice of many concerns to route salesmen on the basis of the towns they can cover in a given period of time. But a salesman's stay in a town should be based simply on its trade possibilities, and it is up to the sales manager to know those possibilities.

Suction Rolls and their Operation

By W. H. MILLSPAUGH

President of the Sandusky Foundry & Machine Co., Sandusky, O.

oMETIME ago there was published in PAPER a very complete and laudatory article on the installation of suction rolls in an Ohio mill. This brought forth in other journals comment on the subject of suction rolls in general and patents in particular; but the articles referred to were full of inaccuracies, so far as the operation and general scheme of

suction rolls are concerned.

There has been much "tomyrot" published both in the United States and in foreign countries regarding suction rolls, most of the articles having evidently been written by persons possessing a very meagre experience

with the operation of such apparatus.

The writer wishes to set forth for the benefit of the trade at large, certain facts in connection with suction rolls and their use. He believes that he speaks with as great authority on the subject as anyone, inasmuch as when he began the development of suction rolls they were in a class with perpetual motion and other mechanical visions. Perhaps a hundred or more patents have been taken out on suction rolls in the United States and other countries. The writer has personally traced the experience of very many experimenters with them and knows about thirty different devices that have been manufactured and tried, practically all of them having been finally consigned to the junk heap. It seems strange that a device so simple as the Millspaugh suction roll should not have been discovered earlier, but the fact remains that the basic principle that must be incorporated in a successful suction roll was not discovered until the writer's development of it. The principle is the packing must not be free to press against the interior of the rotating shell without limiting means; for just as soon as this is done, no matter how the contact may be made, disaster will surely follow. Great friction develops between the packing and the shell, causing chatter, and excessive power is required to rotate the apparatus, and nothing can prevent the packing and the shell being eventually ground out and destroyed.

Then again, suction rolls have been built with many compartments, attachments and "contraptions," requiring minute and elaborate adjustments, which adjustments have failed invariably. This last remark covers the general class of suction rolls that have been manufactured with a stationary box and a rotating shell.

As to the multitude of suction rolls having compartments separated, one from the other and each successively under vacuum and open to the air, they are legion

and are all failures for practical purposes.

Probably the best example of such a roll was the Johnson patent, long expired. All similar devices made since have been but modifications of this in detail of construction and none have marked any improve-

ment over the original Johnson patent.

These compartments must be emptied of their free air and vacuum produced in them in a very short space of time, requiring large pumps. The bars between the compartments leave wet streaks in the paper and each compartment, as it passes beyond the vacuum zone, empties the water contained in the compartments or buckets out on the felt when used on felts or on the paper just at the point it is leaving the suction when used on a wire. The principle is wrong and cannot

be made right. Traveling flat suction boxes have been

tried and have proven a failure.

The rolls mentioned in the article already referred to are simply the Acme suction roll which we first manufactured, the patents for which we control with slight modifications and better made, as the experience gained by the many successes of the later Millspaugh rolls would indicate were necessary. However, the principle involved was wrong and it was abandoned by The Sandusky Foundry & Machine Company, so far as its manufacture is concerned, the later rolls being so much superior. This design was taken to England by a former employee of our company.

As to the power required for a suction roll, that article was false, as any intelligent man must know

when he understands the principle involved.

So long as the rolls are in condition not to leak a greater amount of air than the Millspaugh roll or any other roll of like construction, then the power required to carry the necessary volume of air through the sheet to dry it will be identical, if identical pumps are used. In other words, the sheet of paper is dried by the passage of air through it and in no other manner and a given volume must be carried and it is only a question of the efficiency of the pump used.

In regards to the power for operating the wire end of the machine, the wet end of a machine operated with common couch rolls stops instantly when the clutch is thrown out. With the Millspaugh roll, it is frequently the case that the roll will continue running and the wire travel several feet when the clutch is thrown out, as it is carried forward by the inertia of the main bevel

gear found on all couch drives.

Prospective users should note carefully that the difference in power between the old couch rolls and suction rolls is properly deducted, as is the power required by the ordinary pump on the flat boxes, from the power required to operate the rotary pump for a suction roll.

To illustrate: On a given machine the rotary pump may require 20 brake horsepower to operate it. The wire will probably take three to four horsepower less than with couch rolls and the ordinary reciprocating pump on the flat boxes that is displaced by the rotary pump will require five to six horsepower more, so the net extra power required for the outfit will be ten to twelve horsepower, providing always that the paper does not go to the dryers containing less moisture than when the couch rolls are used. Frequently, however, when suction rolls are used the paper goes to the dryers with so much less moisture that the back pressure is reduced on the engine driving the machine, thus saving steam, increasing the mean effective pressure on the steam engine and actually resulting in a saving of total steam necessary to operate the machine. It is very fair to say that in nine cases out of ten, the cost for steam per ton of paper made is no greater with suction rolls than without, and in many cases, it is much less.

Our suction rolls have proven mechanically correct, as over three hundred in use will attest. There is no

experiment about them.

The operation of suction rolls on fourdrinier paper machines is a radically different proposition from operating on a cylinder machine. On the cylinder machine the paper is carried by the felt to the presses. The office of a suction roll on a cylinder machine is there-

fore, merely to dry the felt and take what free water may be readily removed from the paper, so that the total water held by the felt and paper when passing through the presses is reduced, as it makes no difference whether water be in the sheet of paper or in the felt. A comparatively dry sheet of paper on a wet felt could be made to crush. The operation of a cylinder machine is therefore very simple and it is only necessary to carry a small volume of air through the paper and felt to put them in condition for the presses, the same as flat boxes would do if sufficient vacuum were carried.

The principal advantage of the suction roll on cylinder machines is to do the work with less power and wear and tear of felts, while on a fourdrinier machine an entirely different principle is involved. In fact, a new process of papermaking was brought out by us—the removal of a greater volume of water from the sheet of paper than would be possible with flat boxes, by means of large volumes of air carried uniformly through the sheet of paper by means of a positive rotary pump. This system of papermaking is different from that where regular couchers are used, in that with the regular couchers the water is pressed out, while with the suction roll it is atomized, and the paper is not stretched or distorted as with the couch roll. The Ohio mill mentioned recognizes the improved quality of paper, and since your article appeared, have contracted with us for suction rolls for their machines. That papers print better made over suction rolls is evidenced by the improved appearance of the illustrations of the Ladies' Home Journal since suction roll paper was used. derful results in color and offset printing are being secured on Ticonderoga papers made for such purpose. Printers are demanding coated papers made over suction rolls, as the two sides are alike. Much more could be written on this subject but it will be reserved for a future article.

It is obvious that the dryer the air, the less the volume required for a given amount of work. This system of papermaking is patented, and no one has the right to use it without our consent. The paper is not pressed into the wire, therefore, it is freer from wire marks, the two sides are more nearly alike and it is uniformly dried its entire width and is therefore in better condition to receive its future treatment by the presses, even though the paper should go to the first felt containing fully as much moisture as it would were a couch roll used. The question of the comparative dryness of a sheet of paper with the couch roll and suction roll is very hard to determine, as the percentage of dryness in each case varies on every machine and with every kind of stock, the beating and brushing of the stock having much to do with it. It is found that papers of a close or so-called "greasy" nature like parchments, greaseproofs, bonds, writing papers, etc., made from all sulphite stock invariably go on to the first felt dryer when properly handled over a suction roll than with couch rolls and on these classes of paper the couch roll always gives the most trouble. On many kinds of soda pulp, book and coating papers, there is practically no difference between couch roll and suction roll, so far as dryness at the first felt is concerned. In a very few instances, on open sheets of poorly beaten sulphite and soda papers, the tests are lower with the suction roll than with the couch roll. It is possible to close a sheet much better on a machine equipped with a suction roll than with couch rolls, for the reason that it can run much wetter under the dandy roll and to the suction roll without danger of crush, as is the case when a couch roll is used; and it is worthy of note that watermarks are improved.

On the Everett Pulp & Paper Company's two book

machines the paper is delivered to the felt in a dryer condition than with couch rolls, as a consequence probably, of the character of the wood or cooking. It is to be borne in mind, however, that the paper, whether dryer or not, is in better condition to receive the presses and usually goes to the dryers containing less moisture made with suction rolls than with couch rolls. On newspaper at the Cliff mill, where first felts with couch rolls lasted six days, the installation of a suction couch roll increased the life of the felts to 9.7 days, clearly showing as did the tests, that their paper went to the felt dryer. It also eliminated many of the difficulties from wet streaks previously experienced with couchers.

It has been charged that suction rolls remove the clay from a sheet of paper. Tests, however, show that the ash from suction roll paper runs higher from corresponding couch roll paper. The Mead Pulp & Paper Company's famous enameline paper is perhaps as highly loaded as any book paper in the country, and this is made over suction rolls without a particle of trouble, proving that such contention is wrong. The percentage of ash in news paper with the same furnish as taken by a Norwegian mill showed 15 per cent for couch roll paper and 17 per cent for suction roll paper. There may be, and often is, if excessive vacuum is carried on a heavy sheet of paper, slightly more of a color or filler removed from the under surface than when couchers are used. This is evidenced by the fact that heavy sheets of paper colored with pigment on machines equipped with suction couch rolls but not equipped with suction press rolls often show a decided difference in color. For this reason suction couch rolls are not recommended at present for papers colored with pigments. This difference in color does not apply when fast dves. such as anilines, etc., are used. With such fast dyes, such as anilines, etc., are used. papers there is no difference between the suction couch roll and the regular couch rolls.

As to the life of wires, after about four years experience we can say that given the same attention, the wires last longer, frequently by 50 to 100 per cent. The Sorg Paper Company on 120 inch machine run wires more than twenty weeks. The Merrimac Paper Company get seven to nine weeks out of wires that formerly lasted two weeks, and they use agaite as a filler which is hard on wires. It is obvious that wires should last longer, as the destructive effect of the couch roll is removed and wires are freed from pitch spots, as these spots are fixed in the wire by the couch roll. difficulties of breaking in new jackets and the breaks at the couch are eliminated with suction couch rolls, therefore, the production is frequently higher and it should be in all cases if proper care is taken to keep the stock free from lumps and to keep the deckled edges clean.

It is much simpler to operate a paper machine equipped with suction rolls than with couch rolls. While the saving in wires and jackets is always sufficient to pay a handsome return on the investment, we dwell very little on this subject, as the improved quality of paper and increased production and lessened cost of manufacture are the points that commend the suction couch rolls to the paper manufacture.

All the above refers to suction rolls on ordinary cylinder machines and as couch rolls on fourdrinier machines. The idea is being carried farther and a number of suction press rolls have been installed. However, the results are so astonishing on news, fibers, light tissue papers, etc., that the subject should be treated in a separate article which will be forwarded.

This article has been prepared for the information of paper manufacturers as all sorts of foolish claims are being set up by inexperienced people regarding suction rolls.



Utilizing New Papermaking Material

N THE opening paragraphs of the specifications for a patent which has been issued to Robert A. Marr, of Blacksburg, Va. (U. S. patent, No. 696,488), it is set forth that it has become a problem of paramount importance to find a substitute for wood and the other usual sources of paper pulp because of the rapid depletion and imminent disappearance of our forests and other present sources of papermaking materials. Many plants cannot be used for papermaking owing to the fact that the percentage of fibers is too small to make the separation of the fibers from the remainder of the materials in the plants profitable, or because of the fact that the fibers are too weak to produce a paper of the required strength, or because of the fact that no feasible method is known for the separation of the fibers from the remainder of the solid materials.

By means of his invention he says he is enabled to make paper commercially having the necessary characteristics of papers now in general use, and by the utilization of almost any vegetable growth. Quoting

from the specifications he says:

While my process is such as to render possible the use of any vegetable growth, I have found the following materials especially advantageous in making paper in accordance with my process: banana leaves, American papyrus or sedge, swamp grass, typha, weeds of various kinds, green or dry leaves of various kinds, cactus, liliaceæ, cordage fibers, milkweed, California tule, sudd, waste vegetable materials, etc. In making paper in accordance with my invention, the entire solid content of the plant is utilized and the materials in the plant which might be a source of weakness, such as nonfibrous materials, are utilized in such a manner as to provide a strengthening element to the resulting paper. In this way I avoid the difficulty previously experienced in the separation of the fibers from the nonfibrous portions of plants, and I, furthermore, am enabled to utilize plants, the fibers of which were previously considered too weak to be used in papermaking. My process is such, furthermore, that while the fibrous materials are bound together by the transformed nonfibrous materials, the resulting paper is maintained flexible by reason of the method of treatment. Furthermore, the resulting paper is of such a character that it requires little or no size, as the transformed solid materials form both a filler and glaze which obviate the necessity of applying the usual filler and size. The resulting paper is also of such a nature that it is not affected by wooddecomposing fungi as the method of treatment not only sterilizes the paper stock, but renders the paper permanently antiseptic.

"In carrying out my invention any process may be adopted in which the objects above referred to may be accomplished and particularly any process in which the nonfibrous solid materials of plants are utilized for forming a cementitious binder for the fibrous constituents of the plants, and any vegetable material may be used as a basis for the process with which the above

results may be accomplished.

"As an illustrative embodiment of my invention, however, I may proceed as follows: A quantity of green

or dry banana leaves are comminuted as by chopping in any desired manner as, for example, in a grinding machine or shredder. The comminuted leaves, together with the liquid materials incidentally expressed in the grind operation are then boiled in a digester or other receptacle with the following solution: The solution is prepared by adding a quantity of chloride of zinc to a body of water, the chloride of zinc being kept in solution by the addition of a few drops of hydrochloric acid. To this solution of chloride of zinc there is added a small quantity of glycerin and tannic acid. The comminuted vegetable materials are cooked in this solution preferably by boiling for a period of approximately thirty minutes. During this treatment the nonfibrous cellulose constituents of the leaves become transformed into a paste-like mass in the presence of The paste-like mass which is probably amyloid, is utilized as a cementitious binder for the fibrous and other solid materials of the plant in the formation of the paper. The glycerin maintains this binder soft, so as to keep the resulting paper flexible. It is to be understood, however, that the glycerin is used only in the case where it is found desirable to produce paper requiring a softening agent. While the tannic acid may be omitted if desired, it is ordinarily used in order to render insoluble some constituents of the plant which would otherwise remain soluble. After the vegetable materials have been cooked in this manner, the moisture is removed by passing the liquid and insoluble materials through a press or centrifuge. The solution used may be recovered at this point for further use in papermaking.

"The solid materials thus obtained are then further comminuted and broken up by passing through a grinder or beating engine, the treatment being preferably effected in the presence of water. The watery mixture thus obtained is then transferred to a tank or other vessel for the bleaching operation. be instances in which it is desired to preserve the chlorophyll of the plant being treated, and in such cases the bleaching operation is omitted. When omitted, my process is such as to preserve the color of the chlorophyll indefinitely. In the process of making paper for most commercial uses, it is desirable, however, to remove the color of the vegetable materials and in such cases I submit the vegetable materials to bleaching agents of a kind found to be most desirable. The bleaching operation may, if desired, be effected by subjecting the watery mixture obtained from the grinding or beating engine to the action of sodium peroxide. The addition of the sodium peroxide liberates a quantity of nascent oxygen which removes the greater part of the color, and the resulting alkali formed by the addition of the sodium peroxide has some effect in mercerizing the fibers. If the color is not entirely discharged by this treatment, the solid materials may be washed by one or more changes of washing water, and thereafter the vegetable materials may be subjected to the action of chloride of lime or other similar strong bleaching agent. bleaching action has been completed, all traces of chloride of lime and chlorineare removed in any desired manner, as by washing and neutralization, and if desired, the pulp may be subjected to a further grinding

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or beating in a grinding or beating engine of any desired character. The white pulp thus obtained is then run into a paper machine in which the pulp is filtered upon a wire screen, then dried and finally subjected to calendering rolls, to compress and glaze it. This completes the process of making the paper unless it is found desirable to add other steps such, for example, as sizing, filling, coloring, etc. If it is desired to add these or other steps to the process, they are carried out in the

proper place in the papermaking process.

"The paper thus formed is of an even texture and is usually comprised of the fibrous parts of the plant interwoven and securely bound together by means of a cementitious binder formed from the nonfibrous constituents of the plant, and consisting probably of amyloid. This latter substance not only acts as a binder for the fibers, but acts as a filler and a sizing for the paper, so that the addition of no other filler or sizing becomes necessary. Although the fibers are, in this manner, effectively bound together, the resulting paper is very flexible and is rendered especially flexible, owing to the presence of glycerin added during the process. It is to be understood, also, that in the treatment of the vegetable materials which ofttimes contain an appreciable amount of oil, the treatment is such as to decompose the oil, liberating a quantity of glycerin. glycerin has the effect of assisting in the softening. The presence of the tannic acid causes some of the soluble constituents to be rendered insoluble and by this means a larger percentage of papermaking materials is obtained. In making paper in accordance with my process, from 98 to 99 per cent of the solid constituents of the plant may be transformed into paper. Paper stock formed in accordance with my process is, furthermore, of such a nature that it will remain unaffected by any wood-decomposing fungi indefinitely. This is due probably to the retention by the paper of some of the the zinc salts and some of the compounds formed by the tannic acid.

Experiments with Arizona Pine

A RIZONA experiments by the Forest Service show a yield of resin from Western yellow pine about four-fifths as great as that obtained from Southern yellow pines in average operation in Florida. Weather conditions in Arizona, however, will allow only a twenty-four or possibly a twenty-six weeks' season, as against a thirty or thirty-five weeks' season in the Southeast, so that when the yields for an entire season are compared, Western yellow pine shows a production about two-thirds as great as that from Southern yellow pine. The average proportion of resin and turpentine in the gum was about the same as in gum from the Southeastern pines, and the turpentine had a composition much like that from the Southeast.

The California experiments on Western yellow pine, carried on over a period of sixteen weeks from July 7 to November 1, show an average rate of flow slightly greater than that in the Florida experiments. Had the work in California been started earlier, it is probable that the weekly average would have been lower, as a smaller yield is to be expected early in the season. The season of flow in California will undoubtedly be as long as in Arizona, and probably longer. The composition of the volatile oil obtained by distilling the gum from California differs from that of ordinary turpentine somewhat more than does the Arizona turpentine, but the oil probably will be satisfactory for industrial purposes.

Pinon in Colorado has a rate of flow slightly over half

that of the Florida pines for a twenty-week period, from June 9 to October 31. The volatile oil from the pinon gum differs somewhat from ordinary turpentine, but is probably suited to industrial use.

Some Legislative Checks on the Paper Trade

THE RECENT centenary of the British Newspaper Stamp Act (passed in 1712) reminds us how much was done in olden times to check the paper and printing trades by repressive legislation, Many living Englishmen can remember the little red stamps which were embossed on every newspaper. The 1712 tax was one cent per half sheet and two cents if a whole sheet were used. There was also a shilling tax on each advertisement. A hundred years ago (1813) this newspaper duty brought in £394,000 ster-

ling per annum.

The British paper duty dated from 1694. Papermakers had to declare private addresses and stores as well as mills, and to pay a £2 license before commencing business. Regular "entries" or sworn declarations of quantities and kinds of paper manufactured, had to be made every six weeks. The penalty for (1) neglecting to declare; (2) removing or concealing paper; (3) not paying duty within six weeks of entry or (4) resisting excise officers was £50 (\$250). The duty varied with the class of paper, from two to twelve cents per lb, but usually averaged about four or five cents. There was a drawback for paper exported, and for certain books-printed at the Universities in Oriental and dead languages. In 1800 the paper duty was stated to bring in £200,000 sterling per annum, in 1840 about £1,500,000. In 1836 Mr. Spring Rice proposed an all round duty of three cents per lb. At that time, he said, the duty on paper represented 25 per cent of the value of writings, 50 per cent to 60 per cent on printings, and as much as 200 per cent on some coarse wrappings, etc. "Till the paper trade can escape from the clutches of its ancient drynurse the Excise, neither it nor the book trade can acquire the same ascendency in exportation what all other articles of British manufacturers have over France," wrote a farsighted writer in 1840.

One of Mr. Gladstone's titles to the admiration of

One of Mr. Gladstone's titles to the admiration of posterity is that he was instrumental in removing these "taxes on knowledge." He brought forward his resolution on August 6, 1860; and how daring a step it was is best proved by the fact that the Government majority in the House of Commons was but fifteen votes on this occasion. Then the penny newspaper came into being, and the subsequent development of newsprint is a mtter of trade history. It is, however, worth noting that Volter's process for making mechanical pulp was patented in England in 1860, the same year that the paper duty was abolished.

The idea of a stamp duty as a means of raising revenue is said to have originated in Holland in 1624 (Encyclopædia Britannica). The Spanish, M. Gonzalez de las Casas assures us, had four kinds of Government stamps as early as 1636; the "Sello Mayor" (or great stamp) costing 262 maravedis. England took up the idea in 1694 to raise money for carrying on the French war, and the Grenvilles stamp Act of 1765 is usually considered as the first link in that chain of events which terminated in the Independence of the United States.

PAPER

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Merry Christmas!

dial greetings of the holiday season. Aside from any religious significance it may have, Christmas is an institution that modern civilization could not well afford to dispense with. Whether or not we have orthodox faith in that Divine Character the anniversary of whose birth the world has celebrated for almost two thousand years, we all unconsciously accept the great truths which He taught and profit by the application of their principles to our daily lives.

Christmas stands for peace, for good cheer and for brotherly kindness. It is a time to forget our differences and be neighborly, a time to forget our troubles and be happy, a time to forget ourselves and remember others.

The custom of making gifts when Christmas comes round is not meant to be perverted into a contest of senseless display, as some have foolishly made it; but rather was the season intended to be a time for the mutual exchange of the tokens of good will. Christmas serves a good purpose when we use it as an opportunity for balancing our neighborly accounts and getting right with each other.

It is a good thing for the busy man who has prospered to cease his activities once in a while and get on a level with his less fortunate brother; likewise it is good for the man who has struggled and failed to cease worrying occasionally and look into happy faces and hearken to cheerful voices, for they may help him to renew his courage and try again.

Whatever the past may have brought you or the future promise, it is our sincere wish that all who scan this page may enjoy full measure of the season's bless-

ings, and that all may share the fruits of the benediction which the angels chanted to the shepherds of Judea as they kept watch over their flocks by night, more than nineteen hundred years ago: "On earth peace, good will to men!"

True Conservation

MONG the many unsound arguments which have in recent years been advanced by those who would remove every restraint and freely admit the product of foreign paper manufacturers to the American market none perhaps is more fallacious than that which is so frequently and fervently made in the name of conservation.

So persistently has the papermaker been held up to public gaze as the arch destroyer of our trees that the uninformed have learned to regard him as such and to look upon him as a plague no less to be dreaded than the locusts that wasted the fields and ravaged the forests of Egypt.

When the Ways and Means Committee of the House and the Finance Committee of the Senate were giving consideration to the Payne-Aldrich tariff bill and to the McCall reciprocity measure they were told over and over again that the American tree would be speedily doomed, unless something be done at once to encourage the importation of paper and at the same time to correspondingly discourage the consumption of our domestic forests. And strangely enough the statement appears to have found credit with many who heard it.

In the first place it does not seem to be generally understood that a very small part of the timber cut in the United States is converted into pulp; less indeed than two per cent. Nor does it seem to be understood that a considerable part of that two per cent is made up of such materials, gathered in connection with lumber operations, as would be left to rot on the ground or to be burned up as so much rubbish, but for the market afforded by the pulp mill.

But what is more to the point, and what it is our purpose here to demonstrate, is the utter fallacy of the argument that our native forests will be best conserved by drawing our paper supply from foreign countries.

Conservation in its truest and best sense does not mean that we are to abstain from using the thing to be conserved. On the contrary, it contemplates its use in the most economical, beneficial and permanent way. That is more particularly true of those things which are capable of reproduction. It is entirely conceivable that a different rule might apply to certain things of a limited quantity and of such character that the supply could not in any reasonable time be increased. If, for instance, the end of our coal deposits were in sight, it might be the part of wisdom to provide every possible substitute, thus reducing the quantity taken from our own mines to the minimum; for centuries must come and go in the process of coal reproduction.

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THE WEEK'S LATEST TRADE NEWS,

Contracts Awarded for the Bergstrom Mill

[SPECIAL TO PAPER]

APPLETON, Wis., Dec. 23—The extremely favorable weather so far this fall and winter, has permitted building operations to be continued without interruption. As a result of this fine progress has been made upon the buildings for the new mill of the Bergstrom Paper Co., at Neenah. One side of the new building fronts on Neenah's principal business street, and in defering fronts on Neenah's principal business street, and in deference to this circumstance that wall of the mill is being laid up of a very handsome red pressed brick. Although the new mill closely adjoins the company's old mill, it will be absolutely an independent institution, having its own separate equipment throughout, including its own boiler house and motive power installation. The only connection between the two mills will come through the old mill being supplied with filtered water from the filter plant which is to be put in the new mill. The new buildings are being constructed of sufficient size to accommodate two maner machines and related equipment it bough but one machine paper machines and related equipment, though but one machine

paper machines and related equipment, though but one machine is to be put in at present. It is expected that the new plant will go into operation early next summer.

Equipment contracts have been awarded as follows: 140 inch paper machine, Beloit Iron Works; six washers and beaters, Valley Iron Works, Co., Appleton; Jordans from E. D. Jones Sons Co.; 1,000 hp. steam turbine from Allis-Chalmers Co., supplied with steam from Wickes upright boilers, turning a 750 kw. General Electric Co. generator. All the machines will be independently driven by electric motors. The contract for the water filter plant has not yet been awarded.

The John Strange Paper Co., of Menasha, Wis., is negotiating for the purchase of a 300 hp. exhaust steam turbine to be added to its power plant. It is expected to be ready for installation next spring.

next spring.

Large Surplus of Pulp in Northern New York

[SPECIAL TO PAPER]

WATERTOWN, Dec. 23-Compared with a few weeks ago, when the local division of the International Paper Company had but a the local division of the International Paper Company had but a few hundred tons of ground wood stored up for future use, when power conditions are less favorable than they now are, the division has over 1,500 tons of pulp on hand and is constantly adding to it. This is the largest surplus that the Watertown Division has had on hand since early last summer before the low water period set in. The division is constantly receiving orders to fill, which have been apportioned from headquarters in New York and again has all of the six machines of the division in operation makagain has all of the six machines of the division, in operation making paper. For three days last week the two fourdrinier machines at the Ontario mill were shut down in consequence of one of the beater wheels, breaking which necessitated the installation of a new wheel. This wheel was put in and the fourdriniers started up again Monday.

BLACK RIVER.

Dodge to Head International

Philip T. Dodge, President of the Mergenthaler Linotype Company, has been asked by some of the members of the Board of Directors of the International Paper Company to become President of the latter company, and it is understood that the proposition will be formally considered at the meeting of the proposition will be formally considered at the meeting of the board this week. Alonzo N. Burbank, the president for many would then retire and become chairman of the board.

Mr. Dodge. who is now on his way to Europe, is credited with developing the Mergenthaler Company to its present large busi-

Whether or not Mr. Dodge would retire as president of the Mergenthaler Company or continue to act as president of both companies, could not be learned. Mr. Dodge has been a director of the International Company for some time.

New Machine in Operation at Kimberly

SPPCIAL TO PAPER

APPLETON, Wis., Dec. 23—The Kimberly-Clark Co. started its new paper machine at the Kimberly mill a short time ago. Everything started off so perfectly that shipments of paper from this machine were begun from the first day. The machine is 138 inches wide and increases the capacity of the mill one-third, bringing the daily output up to 100 tons a day of book paper.

Weather Stops Work at Biron

[SPECIAL TO PAPER]

APPLETON, Wis., Dec. 23-Work at Biron, on the Wisconsin river, at the mill of the Grand Rapids Pulp & Paper Co., upon the raising of the levees, which was proposed to be interdicted by the state authoriies, pending some expected new water power legislation next spring, has been stopped in the natural course of events by the weather. The paper company of late has been building a walk over the top of the dam, which will be a great convenience to their employees who are obliged to cross the river

in going to and from work.

The people of Grand Rapids as well as of Biron have no sympathy with the effort of the state to interfere with the Biron water power development. Work on the west end of the dam has already been completed and considerable work has been done on the improvement of the eastern end. Twenty new residences were put up last summer in the village of Biron, and it is said that thirty more are likely to be erected as soon as the proposed water power and mill improvements are completed.

The village of Niagara, Wis., where one of the Kimberly-Clark Company mills is situated, had a bad fire on Thursday morning last, several business buildings being destroyed and the hotel building seriously endangered. The paper mill, however, was

not menaced at any time.

Mr. and Mrs. J. C. Kimberly and Mr. and Mrs. W. Z. Stuart of Neenah, and Mr. and Mrs. Nathan Paine of Oshkosh, took their departure last week for Redlands, California, where they will spend the holidays with Mr. and Mrs. J. A. Kimberly.

Mrs. A. W. Patten of Appleton, has gone to Honolulu for the

Appeal Against Transfer of Case

[SPECIAL TO PAPER]

WATERTOWN, Dec. 23-Attorneys Delos M. Cosgrove and Thomas Burns of this city have returned from New York, where they argued an appeal on the part of the plaintiff from the order changing the venue from New York to Jefferson county, in the action brought by Mary Remington against J. B. Taylor, the Watertown Light & Power Company and F. M. Parker, and others. The action was brought to recover \$150,000 for the alleged illegal transfer of shares of stock in the H. Remington

Sons Pulp & Paper Company.

The plaintiff is the daughter of Hiram Remington, one of the The plaintiff is the daughter of Hiram Remington, one of the pioneer paper manufacturers of this part of the state, who died several years ago. Mr. Remington owned the plant of the H. Remington Sons Pulp & Paper Company on Sewall's Island and another plant at Black River. These were sold to Mr. Taylor of the Watertown Light & Power Company and Mr. Taylor later disposed of the Sewall Island plant to the Cylinder Paper Company, retaining the Black River plant. F. M. Parker was made one of the executors of the Hiram Remington estate and the plaintiff to the action alleges that he allowed the transfer of the plaintiff to the action alleges that he allowed the transfer of the stock in question, knowing that the transfer was not legal.

It is said that the bone of contention in the case so far as the plaintiff is concerned is that the price paid, was not pleasing to the plaintiff, one of the heirs of Hiram Remington. The trial was set to be held in New York, but no order was obtained changing it to this county and from this order the plaintiff took the appeal, which has just been argued before the appellate division, first department.

BLACK RIVER.

New Machinery for Lakeside Mill

[SPECIAL TO PAPER]

APPLETON, Wis., Dec. 23-Contracts were awarded last week by the Fibre Development Co., for the machinery for duplicating the capacity of the mill of the Lakeside Paper Co., of Menasha, as follows: 118 inch paper machine, Pusey & Jones; three 1500 lb. beaters and two 2000 lb. washers, and two 10 x 24 stuff chests, b. beaters and two 2000 lb. washers, and two 10 x 24 stuff chests, Valley Iron Works Co., Appleton; two 12 x 10 triplex stuff pumps, Beloit Iron Works; steam boilers, Lyons Boiler Works, De Pere, Wis.; superheaters, The Power Specialty Co.; electric elevator, Kieckhefer Elevator Co., Milwaukee; rotary rag boiler, Manitowoc Boiler Works; 100 tons structural steel, Worden-Allen Co., Milwaukee. The paper machine is to be delivered in June. The new equipment will make high quality book, writing and bond papers. and bond papers.

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Question of Industrial Insurance to the Fore

[SPECIAL TO PAPER]

DAYTON, Dec. 23—Representatives of the state have been spending some time down the Miami Valley during the last several weeks in an effort to make more clear the aims and purposes of the plans submitted by the recent legislature on the question of industrial insurance. Manufacturers and employers, generally, are deeply concerned in the movement and they are gradually becoming more favorably inclined to the system that has been created for them. C. B. Randall, of Columbus, has been addressing the employers of the Miami Valley and reviewing and explaining every phase of the new law. The last Ohio legislature passed the law and it became effective last March. Since that time, a great many employers of labor have joined in the cooperative movement. It is not a money making scheme for the state but was organized for the purpose of helping manufacturers settle claims for damages. Among the largest concerns, that have taken advantage of its provisions, is the Champion Coated Paper Company, of Hamilton.

PAPER BOXBOARD COLLECTIONS

"There is something significant about the fact that nearly all the eastern board mills have at the same time concluded to alter their system of collections," said a prominent paperbox board manufacturer to the correspondent of Paper a few days ago. "Heretofore all the concerns, with whom we have been dealing, granted a discount of 3 per cent in thirty days but now have changed and are offering only 2 per cent in the event payment is made in fifteen days. All the notices that we have received have been absolutely uniform and the conditions are identical.

"While, of course, the indications may be entirely misleading," continued this paperbox manufacturer, "yet, I say it seems somewhat strange. It would not be surprising to find that there is collusion among the paperbox board manufacturers but I am not prepared to make a definite charge of this kind. I, personally know of five concerns that have established the same basis for collections and I presume all of them are cognizant of the situa-

tion."

A motion for a new trial of its case against the National Box Board Company of Middletown, was filed Thursday by the Hooven, Ownes & Rentschler Company, of Hamilton. As a basis for the motion, it is set out in the appeal that the decision of the Court was not based on the substance and clear significance of the issues involved in the litigation but on the form of the affidavits filed in the county recorder's office with the conditional contract of sale offered in evidence. It is also set forth that the decision was based upon a mere technical error in the form, which the court, in its equity privileges, could and should have corrected.

MR. KAHN AWARDS BIG CONTRACT

Lazard Kahn, stockholder and director in the United Box Board Company, has awarded the contract for a big addition to the Estate Stove Works, at Hamilton, of which he is the president, to the Bender Company, of that city. This was one of the biggest contracts that have been given out in that place for a long time and there were many strong concerns competing. Business has been increasing by leaps and bounds at the Estate Stove Company's plant and it has been difficult to fill the orders. The new addition is to be used partly for storage purposes and partly for manufacturing purposes.

FAVORS INVESTIGATION IF CORRUPTION EXISTS

George B. Smith, president of the Kinnard Manufacturing Company, engaged in the manufacture of paper boxes, pails and various paper novelties, who, it was prevalently supposed, was partially responsible for the investigation being made of conditions in this city by the Burns Detective Agency, denies any association with the movement but declared that he believed the movement was justified. "I am in favor of investigations at all times if alleged corruption exists," said Mr. Smith, who is also president of the Dayton Chamber of Commerce. "Of course, I want to see the investigation directed along right lines," he continued. "However, the present investigation is one for which the Chamber of Commerce does not assume the responsibility."

ENCOURAGING OUTLOOK FOR COATED PAPER

John Maloney, who is officially connected with the Franklin Coated Board Company, declared a few days ago that there are at present indications that the coming year will be one of the best that has been experienced by the paper trade in the Miami Valley for a long time. The company some time ago secured a contract with a magazine publisher and this amounts to many thousand dollars a year. A splendid business has been built up by this concern since it began only a few years ago and the indications for the future are exceptionally encouraging.

STATUS OF MILDDETOWN BOXBOARD PLANT

As far as ascertainable, the sale of the National Box Board Company's plant at Middletown has not yet been effected. It will be recalled that the announcement was made last week that negotiations to this end had been opened, the prospective purchaser being Paul Arthur Sorg, proprietor and owner of the Paul A. Sorg Paper Company, of Middletown. The National Box Board Company, upon the petition of Charles B. Oglesby last May was transferred to a receivership. Judge Gard, in response to Mr. Oglesby's application, appointed Herbert T. Kehew as receiver. Mr. Oglesby explained in defense of his action that he was surety on notes the company had given certain banks in Middletown and Cleveland and that he had nothing to secure him against liability. He explained further that he had been unable to meet most of them and that it would be for the best interests of the company and creditors to have a receiver appointed to continue the plant in operation and make an effort to pay the creditors. He stated that the company was in imminent danger of insolvency, that some of the creditors had already sued on some of their claims and that others were threatening to do so. The plant has been kept in operation under the supervision of Receiver Kehew and it is generally believed that, placed upon a normal basis, the concern could be made a profit bearing institution.

HOLDEN BOX COMPANY PROSPERING

Reports from the Holden Paper Box Company, of Cincinnati, which was incorporated last April, are to the effect that a splendid trade is being established and that the concern bids fair to become one of the biggest and most successful in the state. It will be recalled as heretofore announced in this correspondence, that the Holden Company was incorporated with a capital stock of \$10.000 by Reuben A. Holden, jr., Emil A. Dranditz, George B. Wilson, Henry L. Emerson and Ira S. Holden. The attention of the company is devoted almost exclusively to the manufacture of folding boxes.

The paper box factory that was recently established in Fremont, Ohio, by Galen Shirley and E. H. Gordon, who were formerly engaged in the paper manufacturing business at Elkhart, Indiana, is flourishing and enough orders, it is said, have been booked to assure steady operation for quite a long period. The factory began with the employment of only about fifty people and this number has now been substantially doubled.

ADJUSTING FREIGHT DISCREPANCIES

Local paper manufacturers have been deeply interested in a movement recently launched by the western and middle western manufacturers for an adjustment of the apparent discrepancies and discriminations in the matter of freight charged. In this connection, Robert N. Robinson, manager of the traffic bureau of the Chamber of Commerce of this city, was in Washington last week to attend a conference of shippers relative to what is known as western classification, No. 51. The products made in Dayton that are most directly and seriously affected are those made by Reynolds & Reynolds, manufacturing paper tablets and papeteries; and a number of local boiler manufacturers.

The chief point in controversy is the overflow or excess rule, which requires that the manufacturer shall pay on less than carload lots the same as is paid for carloads, when there is excess or an overflow over a certain definite number of cars. In other words, when a manufacturer wants to ship a quantity of his product that makes more than one or any number of exact carloads, he is now required to pay for the excess the same as he has to pay for a full load. It is this rule that the manufacturers desire ro have eliminated. The Interstate Commerce Commission has promised to take the matter under consideration and ascertain whether there is any relief that can be afforded the manufacturers

THE ALLEGED FRAUDULENT LITHOGRAPHIC TRANSACTION

John Omwake is one of the complainants in the case against Clark A. Miller and Alfred H. Motly who were arrested in London last April after they had been indicted in New York on the charge of fraud in connection with a new lithographing process they are said to have invented and who are still at large under bond of \$20,000. Before they left London in April to answer the charges here, they averred they had organized an English company to protect the English rights under their patent and that they have since constructed a factory in London and are doing business there on a large scale.

Miller and Motly were charged here with having defrauded the United States Lithographing Company. It was alleged that th pair, representing the Print Weave Company, obtained from the complainants two sums of \$50,000 each on a contract in connection with their lithographing process, the right to which the United States Lithographing Company wished to purchase. It was alleged by the complainants that after the payment of the first two sums of \$50,000, Miller and M. tly did not turn up to complete the contract and that the fraud was then discovered.

Mittineague Mill News

[SPECIAL TO PAPER]

MITTINEAGUE, Mass., Dec. 23—In carrying out plans which were formulated some time ago, C. Walter Dearden, advertising manager of the Strathmore Paper Company, has started lecturing in various cities with a moving picture machine, throwing pictures on a screen which show the way paper is made at the Strathmore Company's mills. These pictures were taken at the mills some time ago and the company purchased a cinematograph in order to show the pictures as an advertising scheme.

in order to show the pictures as an advertising scheme.

Mr. Dearden has had unusual success in presenting the pictures and giving his lecture, and he recently gave two lectures in Springfield, one at the Springfield Y. M. C. A. and the other at a noonday luncheon of the Springfield Board of Trade. The lecture was quite an innovation at the Board of Trade and drew the largest audience of the year. Many of the members of the Board of Trade were somewhat familiar with the plant of the Strathmore Company and for this reason the pictures proved the more interesting. Others had little idea of the manner in which paper was manufactured and these watched every operation. Starting from the time the rags and pulp are drawn into the stock houses the pictures showed every machine in operation down to the packing and shipping of the finished material.

ANCHOR ICE MAKES TROUBLE

The cold weather which recently struck this part of the country has caused the mill owners to worry a bit, as the anchor ice which forms in the canal gets into the racks and blocks the water. Since the cold spell men have been kept at work raking the racks all night in order to have them free from the troublesome ice. At times it is hard to get men to stay out in the cold, the Southworth Company being the only one to have their gates covered. It was necessary for the Southworth Company to shut down the machines and beaters two or three times several nights when the ice was very troublesome. This mill is situated the first on the canal and gets the most of the ice. The ice is somewhat broken up before it gets to the other racks.

The breaking of the shaft on the main water wheel last week in the Agawam Paper Company mill No. 1, caused more or less trouble. It was not necessary to shut down entirely as enough water was forthcoming from the smaller water wheel to keep the

machinery moving.

Although there are no outward signs the Papermaker's Union which was recently organized in Mittineague is progressing. The membership is increasing at each meeting and everything points to the success of the union. At present the members are content to rest at ease and make plans for building up the organization.

CHRISTMAS GIFTS FOR WORKERS

As is the custom every Christmas the several mills in town are preparing fancy boxes of stationery for Christmas trade. The Southworth and Strathmore companies put up many boxes of this paper and a number of the employees take advantage of the opportunity to purchase the appropriate boxes. All the companies present their employees with a present for Christmas which for the most part consists of a box of candy. The Southworth company for years has followed out their custom of giving a day's pay to each employee. The Strathmore as well and the Agawam and Worthy companies give their employees a box of fancy candy.

Talk of Specialties Mill at Mechanicville

MECHANICVILLE, N. Y., Dec. 23—It is rumored that a representative of a German-American paper company has been purchasing property along the Tenandaho creek at Willow Glen, about two miles from this village toward Round Lake. The report states that a mill will be erected to manufacture fancy paper, most of which is now made in Germany, and imported into this country at present. The mill in question it is said will employ about 200 men and boys. The land which the paper company is said to have purchased was reported last week as sold to the Delaware and Hudson railroad and to be used as more yard room by that company. There is some mistake as the land certainly can not be used for both purposes.

A New Firm of Chemical Brokers

Baumann & Monnier is the name of a new co-partnership formed to do a general and brokerage business in chemicals and dyestuffs, at 90 Maiden Lane, New York. The partners refer to their many year's connection with the well known firm of A. Klipstein & Co., and their wide and varied experience in regard to the trade and its requirements.

Perplexing Problem at Grand Falls

[SPECIAL TO PAPER]

Bangor, Me., Dec. 28—A preliminary report was filed December 19 by Chief Engineer Cyrus C. Babb of the Maine State Water Storage commission, who was instructed by the governor and council to make a thorough study of the operations now being carried on by the St. Croix Paper Company for the improvement of their power. It is an interesting and somewhat perplexing problem that has arisen in the vicinity of Grand Falls in Washington county and one that has called for special action on the part of the state authorities, or rather for special investigation by them.

The dam and mill of the St. Croix Paper Company at Woodland was completed in 1905, Woodland being on the St. Croix river about ten miles above Calais and twelve miles below Princeton. It was believed that there would be plenty of waterpower but in the last few years the rivers of Maine have experienced unusually low stages and there has been a shortage of water for power purposes at the Woodland plant, which has a daily capacity of about 150 tons of paper. To increase its facilities the company decided to develop an excellent water power privilege at Grand Falls about seven miles above Woodland. The development plan includes the construction of a dam and regulating gates at Grand Falls and the erection of a power house and necessary hydraulic and electrical machinery for the generation of electric power. Their turbine equipment will consist of three pairs of 54 inch Hercules wheels operating under a head varying from 44 to 50 feet. The total capacity of the wheel is 12,600 hp. and the minimum hp. developed during average low water is estimated at 4,000. The plan is to immediately install two pairs only of the turbines, together with two sets of generators.

The Grand Falls dam is a concrete structure with the permanent crest at an elevation of 193 feet. This construction will create a lake about fifteen square miles in area, backing water up both the East Branch and the West Branch of the St. Croix river as far as Princeton. High water at the Grand Falls dam will be 17 feet below the top of the flashboards at Princeton. At the present time there is a force of 400 men working on the new Grand Falls dam which is expected to be finished in a few months. It early became evident that the operations of the company would flow out an area, approximateing 2,200 acres of what is known as Indian township, the property of the Passamaquoddy Indians under the control of the state. The company stands ready to pay all damages and no trouble is expected eventually

in reaching a settlement.

There is, however, a second problem and that is if the back water from Grand Falls dam will reduce the head at the Princeton dam so that a higher level above the latter will result, creating extensive damage in the village of Princeton and raising the flow on Leweys. Long and Big lakes. The chief of the Maine State Water Storage commission is not yet ready to submit his report on the latter matter which he states presents an interesting hydraulic problem.

The Crane Mill in Westfield

Springfield, Mass., Dec. 23—The recent change in the management of the paper mills of Crane Bros., is one of the most important which has taken place in Westfield for some time. There was considerable question, after the death of James A. Crane, as to whether the manufacture of paper would be continued and under what conditions.

The acquiring of the mills by Scnator W. Murray Crane and F. M. Outerson, of Philadelphia, has put at rest the uncertainty in the minds of some, who feared for the future of the business in Westfield.

The transfer of the mills has resulted in a most liberal policy toward employees. When the transfer was made there was a general increase of wages and while the mill was shut down from Thanksgiving through the week the pay of the employees went on. David B. Furber, who has been in the office in charge of foreign correspondence, has been retired on a pension and it is understood that David Barnard, who has been in the Crane employ 36 years, being employed as a farmer about the Crane property, has also been pensioned and members of his family have been given employment in the mill.

It is further understood that employees who have felt constrained to live at the mill boarding house or in one of the nearby tenements have been informed that they may make their homes wherever they desire to suit their own convenience.

The office is being renovated and a large accumulation of furniture and papers is being removed. Every indication is that the mill is to be conducted in an up-to-date manner, with the best of feeling prevailing between the employer and employees.

Waiting for a Call to China

SPECIAL TO PAPER

WATERTOWN, Dec. 23-Within a short time the machinists and paper makers, who were to have gone to China over a year ago for the Bagley & Sewall Company to operate the government mill built at Hankow by former City Engineer Henry E. Baker of this city and equipped by the Bagley & Sewall Company, are expected to go to China and put the plant in operation. Just as they were about to leave originally the Chinese revolution broke. out and Perry D. Taylor, an expert papermaker, who was already on the scene, was compelled to flee the city and return to this The men, who were about to start from here gave up their trip and waited for the hostilities to cease. they have been waiting for orders from China and it is expected that these will be received within a short time.

BLACK RIVER.

Conditions Good for Wood Operations

SPECIAL TO PAPER

APPLETON, Wis., Dec. 23-The Christmas holiday will of course y all the mills. There will be no general rule about Some of the mills will shut down Tuesday night be observed by all the mills. and remain down till Thursday morning, while others, probably will shut down Tuesday night and remain down the rest of the Business, of course feels the effects of the holiday period. Nobody looks for much new business between the 15th of De-cember and the 15th of January, so no one is being disappointed. The Fox river region is at least enjoying good sleighing, snow to make it having come late last week. It is reported from northern Wisconsin and Michigan that a heavy fall of snow has been de-posited. In some parts of the woods the snow is said to be several feet deep. If this is true it is good and important news. The marshes were well frozen beforehand, and the conditions will be the best possible for all sorts of woods operations.

Shipments of Wood Arriving

[SPECIAL TO PAPER]

GREEN BAY, Wis., Dec. 23—Snow now covers the ground in the northern part of Wisconsin and the upper peninsula of Michigan and the movement of rail wood has begun. The mills are receiving shipments of pulp, and the indication is that after January 1 there will be an abundance of the wood. A few weeks ago there was a scarcity of wood on account of lack of snow and of labor, but with the arrival of snow that condition show and of labor, but with the arrival of show that condition has been overcome. The price is now up about 50 cents a cord. Shipments are arriving in Green Bay over the Chicago & Northwestern road, and the Chicago, Milwaukee & St. Paul road. The Soo line is shipping to eastern mills on account of the tariff arrangement being advantageous. While stocks in some of the mill yards were depleted this fall it is believed that there will be no further trouble experienced in obtaining an adequate supply of wood. Yards will be stocked gradually after January 1, 1913.

The Niagara paper mill located in the northern part of Marin-ette county in Wisconsin was damaged by fire Friday to the extent of \$14,000, according to reports received from there. Other buildings in the business part of the town of Niagara were damaged by the flames.

George D. Nau, president of the Green Bay Paper & Fibre Company, Green Bay, Wis., slipped on an icy sidewalk Friday and fell, sustaining a fracture of the left arm.

Maine Forest Fire Protection Service

[SPECIAL TO PAPER]

BANGOR, Mc., Dec. 23—It is only in recent years that the state of Maine has come to realize the value of its fire protection service, conducted under the charge of the state forest commissioner, and many states rich in tibmerlands, have not yet reached this realizing sense. Maine people today wonder why they were so long in recognizing the value of this fire protection, which is not only greatly beneficial but wonderfully inexpensive. This is shown in the report just submitted to state Forest Commissioner Frank Mace by Hosea B. Buck, of Bangor, chief warden for a great district in northern Maine, including 95 townships, embracing an area of 2,317,199 acres and valued at almost \$10,000,000. It cost the state but a small fraction over two mills an acre to patrol and protect from fire this great acreage. The fire district tax, assessed from the owners which is one and a half mills, amounted to \$14,290 and of this there was used approximately \$5,000.

Last of Season's Pulpwood Shipped

PORTLAND, Me., Dec. 21-The Donaldson liner Querida, Capt Lund, from Anticosti Island, arrived last week with a cargo of pulpwood for the International Paper Company, she being the last boat that will come here this season from that locality. The steamer was seven days in making the passage, which was an extremely hard one. She came through the Gut of Canso on Sunday last since which time heavy gales were encountered, which continued without intermission for three days, the steamer plunging into head seas all the time, ice forming rapidly on her decks from the spray that was constantly flying over her.

MILL, RANGER AND INDUSTRIAL NOTES

Miss Elizabeth Quade of New Brunswick, who has been for several years a stenographer in the local mill of the International Paper Company, leaves today for her home, where she will spend Christmas for the first time in a long term of years.
position in the mill is to be taken by Miss Judith Thomas.

Frank Cryan, a woodsman, was brought out last Wednesday from near Magalloway with both bones of his forearm broken. Seventeen miles of his long ride were made on horseback. Mr. Cryan was employed by the Berlin Mills Company. Edwin Martin, also employed by the Berlin Mills Company was brought also to Rangeley Sunday night with a dislocated shoulder. home is in Boston.

The Steamer Canada of the White Star Dominion line sailed today from Portland for Liverpool, carrying among her cargo

500 tons of paper.

In Portland Friday a certificate of organization was filed by the In Portland Friday a certificate of organization was filed by the Bellows Falls Power Company, incorporated to secure, own and operate water power and light properties. The capital stock is \$100,000, and par value of share is \$100. Nothing has yet been paid in. The officers are President, A. F. Jones; clerk, J. E. Manter; treasurer, A. A. Richards; directors, A. F. Jones, A. A. Richards, and J. E. Manter.

Benjamin C. Jordan, of Alfred, a prominent man, engaged for years in the lumber business, died at his home early Saturday morning. Death was due to kidney trouble. He leaves a widow

morning. Death wand two daughters. Death was due to kidney trouble. He leaves a widow

There are some great log piles in the new settlement at Barnjum, Maine's newest woods village. Both Mr. Barnjum and his partner, Chandler Henry, of Boston, have been at the cuttings

lately.

The steamer McElwain, which left Portland Wednesday for Bridgewater, N. S., will make one more trip to Portland with pulpwood this season. The little steamer opened the pulpwood season here last May and her arrival next week will be the last cargo of pulpwood to come here this year for the International Paper Company. The pulpwood importations this season have been very heavy, the total footing to date being 97,775 ends or nearly double the receipts of any previous year.

Times Not Favorable for New Enterprises

[SPECIAL TO PAPER]

APPLETON, Wis., Dec. 23-The Stevens Point Journal announces that the projected conversion of the old McDill property at Stevens Point into a sulphate mill will not take place at present, and gives the reason as being that John Strange, the practical man at the head of the enterprise, does not regard present conditions in the papermaking business as being favorable for the undertaking of new commitments.

Work upon the \$20,000 state repair of the levees at Portage. Wis., separating the Wisconsin and Fox rivers, is just about completed, and it is expected that the dikes will be very firm by the time of high water on the Wisconsin next spring.

The Standard Paper Co., wholesale paper dealers of Milwaukee, have purchased a plot of ground 120 x 120 feet in size on Milwaukee street, just north of Buffalo street, and will erect a fivestory concrete structure upon it, for their own occupancy.

A Bulletin of Clark Trucks

From the George P. Clark Company of Windsor Locks, Conn., has been received an interesting bulletin illustrating hand trucks of various descriptions. The company has discontinued printing a catalogue of its entire product, and in future will publish from time to time bulletins featuring certain distinct lines. latest, Bulletin B, describes those trucks for which there is a demand from many lines of trade including two-wheel hand, barrel and keg, box and coal truckd; push carts; skids and timber dollics. These trucks are made in a great variety of styles, and those interested should send for a copy of the bulletin, mentioning PAPER.

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President Omwake on the Business Outlook

John Omwake, president of the United States Playing Card Company and head of the United States Printing and Lithographing Company, of Cincinnati, who is regarded as one of the leading business men of this state and whose opinions carry, perhaps, as much or more weight than any other manufacturer in the Miami Valley, has just returned from New York, where he held a conference with a number of the directors in the concerns with which he is identified as the head. Mr. Omwake's activities have such a far-reaching influence and bring him into such close touch with the other big industries of the country that he is in position to obtain a clear insight as to the greatest needs of the country's business life.

During my absence I talked with men who are at the head of the largest kind of business institutions, both in New York and throughout the country" said Mr. Omwake. "It is an encouraging fact that I find them to be largely of one opinion. They believe we are now on the eve of a wave of great prosperity. They are sure, too, that, regardless of what moves the administration may make, this prosperity can not be headed off and that, even in the face of the gravest blunders, this country will be sailing at high tide, industrially, for a number of years to come. At the same time, I find them firmly convinced that President-elect Wilson will prove a safe and wise president.

"Owing to the period of great retrenchment, through which

we have recently passed, only such goods as were absolutely necessary, were purchased," continued Mr. Omwake. "This retrenchment entered into every branch of manufacturing in-dustries and, in fact, into every line of activity. Now it is necesdustries and, in fact, into every line of activity. Now it is necessary that the wheels of the mills be set in motion and this will mean the employment of thousands who have been unemployed.

"I find also," proceeded the prominent Cincinnati manufacturer, "that the best business thought of the country is firm-

ly convinced that there is a good time at hand forever to settle this night mare resulting from a continuous wrangling on the tariff and tariff tinkering. I believe that this tariff agitation can best be settled through the medium of a tariff commission or tariff commissions. The country might well be divided into four sections. These might be West, North, South and East. Each of these sections should have its own board to which all needs pertaining to the tariff could be referred.'

Mr. Onwake explained how, when General Hancock was a candidate for the presidency, he had been widely ridiculed for making the statement that the tariff was a local issue. Subsequent events, however, have substantiated the fact that his estimated the fact that his estimates of the substantial of t mate of the question at that time was the correct one, according

to his statement.

Germany's Trade in Paper

The Imperial Government supplies the following details as to abor in German pulp mills for the year 1910: Number of concerns under report as furnishing wages per hour for skilled labor, 384; for unskilled labor, 27. Number of laborers reported—skilled, 3,304; unskilled, 2,325. They received the following maximum wages per hour: Six cents, 100 unskilled laborers; 38 cents, 993 skilled, 1,802 unskilled; 11 cents, 1,752 skilled, 423 iskilled; 13 cents, 423 skilled; 16 cents, 136 skilled. The following figures in a report by Consul General Robert

P. Skinner, Hamburg, show the import and export trade of Germany as to the principal varieties of papers, and the share of the United States therein, the quantities representing metric tons

of 2,204.6 pounds:
Chemical woodpulp: imports, total, 47,193.3; from United States, 938.7. Exports, total, 165,863.3; to United States, 40,869.1.
Vulcan fiber: 1,124.3; 1,024.6. 86.3; nil.
Roofing paper and tubes of same: 1,268.2; 185.5. 10,836 1; nil.
Packing papers not devel : 2,866.8; 0.0. 81,654.0; 2,415.1.

Packing paper, not dyed; 2,826.8; 0.0. 31,654.9; 2,415.1 Writing and note paper: 423.5; 0.0. 15,909.2; 368.3 Drawing paper: 238.2; 0.0. 2,356.0; 290.0. Label, textile, and miscellaneous papers: 816.8; 0.0. 8,406.8;

Colored, lacquered papers: 130.1; 0.0. 17,463.0; 1,437.7 Dyed packing paper: 1,813.2; 0.0. 40,218.8; 937.9. Printer's paper: 932.3; 0.0. 62,285.6; 1,013.7. Carton paper, unruled: 57.7; 0.0. 12,166.2; 495.0. Filtering and tissue paper: 1,642.6; 0.0. 5,415.3; 303.7. Paper with metal impressions, or metal covered: 17.8; 0.0. 23.0. 158.7

683.9; 158.7.
Embossed paper and cardboard: 222.9; 0.0. 1,959.7; 208.7.
Wall papers: \$78.3; 0.0. 13,058.7; 1,263.5.
Binding papers: \$50.3; 261.0. 2.666.7; nil.

The declared value of the exports of paper and paper products from Hamburg to the United States, as invoiced through this consulate general, in 1909 was: Paper \$94,979, products \$163,-012; in 1910, paper \$105,776, products \$77,678; in 1811, pap-\$106,476, products \$56,465; and in the first 10 months of 1912, paper \$73,242, products \$54,540.

New Wrapping and Speciality Mill

SPECIAL TO PAPER

PEORIA, Ill., Dec. 21-The Illinois Paper Company, of which Ernest B. Roberts, of this city, is manager, is building a paper mill at Averyville, near this city. The foundations are completed.

The buildings are basement and one floor, with the rotary and finishing rooms, which will be two stories. The buildings will be of concrete to the first floor and brick above that. All the floors will be of reinforced concrete except the second floor of the finishing room, which will be of 4-inch pine with 2-inch maple

The dimensions of the buildings will be as follows: Machine room, 180 by 75 feet; finishing room, 180 by 62 feet; beater room, 180 by 75 feet; rotary room, 38 by 75 feet, and warehouse,

102 by 75 feet.

The equipment will include one 96-inch three cylinder paper machine built by the Emerson Manufacturing Company, of Lawrence, Mass.; six 1,200 pound Emerson beaters, two Jordans, two Globe rotaries, one 18 by 36 by 42 Cross compound Hamilton Corliss engine built by the Hoover, Owens & Rentschler Company, of Hamilton, Ohio; one Chandler & Taylor variable speed engine and two 12 by 13 four-valve engines.

The paper machine and beaters will be driven direct from engines and the rest of the equipment will be driven electrically. The mill will make strong wrapping and specialties.

Better Paper Used in State Reports

SPECIAL TO PAPER

PITTSBURGH, Dec. 23-A. Bevin Pomeroy, state superintendent of public printing. in his annual report, states that the commonwealth needs its own printing plant for various reasons. He also recommends that steps be taken to prevent the indiscriminate giving out of the state work, stating that at times reports have been held up for more than a year on this account. He also wants the reports given out by the departments for which they are issued, stating that this system would prevent great losses to the state.

The superintendent calls attention to the fact that each year sees a greater volume of printing necessary, as well as a demand for a better class of paper and binding, and that no provisions have been made in the appropriation for this additional cost. The cost for the past two years has been lower than for some years, the present contract, which runs for four years, representing a saving of \$425,000. The cost of printing for the fiscal year ending June 30, 1912, totaled \$303,900.68, an increase of \$84,-072.26 over the preceding year, the additional cost being charged up to the better grades of paper used and the additional work.

Ask Receiver for United Boxboard Company

INDIANAPOLIS, Ind., Dec. 23—A petition for a receiver for the United Boxboard Company was filed in the Federal Court here last Wednesday by attorneys for the Equitable Trust Company of New York. The trust company, it was said, holds bonds of the so called boxboard combine to the value of \$3,000,000. The complaint in the case was to be filed in Jersey City, N. J.

The United Boxboard Company was formed under the laws of New Jersey in October, 1908, succeeding the United Boxboard & Paper Company, also a New Jersey corporation organized in The company at one time owned 90 per cent of the stock of the American Straw Board Company and owned in fee 17 other plants. It also owned all the stock of the Benton & Fairfield Railway Company and had a controlling interest in the National News Board Company, a New Jersey corporation own-ing certain patents which cover the manufacture of news board.

In July, 1908, receivers were appointed for the United Boxboard & Paper Company and the American Straw Board Company. In February, 1909, the property was sold to a reorganization committee formed under a plan whosehout man American Straw Box. zation committee formed under a plan whereby it was transferred to the present company. The United Boxboard & Paper Company had \$14,018,500 common and \$14,882,975 per cent cumulative preferred stock. Under the reorganization plan the old preferred was exchanged share for share for new stock on payment of an assessment of 7 per cent and each 5 shares of old common were on payment of \$1.40 per share exchanged for one of the new stock. The July coupons on the general mortgage and collateral trust issues were not paid. In December, 1911, foreclosure suit was begun under collateral trust mortagee of 1906. In May, 1912, application for a receiver was denied. On February 26 last the reorganization committee, of which Charles C. Adsit is chairman, formulated a plan providing for the formation of a new company under the title of the United Paper board Company. It was arranged to have this become effective January 1 next. Stockholders were assessed \$10 per share under this It is stated that the American Strawboard Compnay is plan. now being operated independent of the United Boxboard Company.

Calendars for 1913

The manufacturers of fourdrinier wires are much in evidence this year with useful hanging calendars. One was received this week from the Wm. Cabble Wire Manufacturing Co., 43 Fulton street, New York, with factories in Brooklyn. It is printed from large readable type in blue and red on white stock and forms an attractive wall decoration.

A calendar that will be valued for its art features is the one sent out to their customers by The Lindsay Wire Weaving Company, of Cleveland, Ohio. It is a hanging wall calendar measuring 19 x 28 inches which bears a reproduction in color photography of the last picture by John McWhirter, R. A. The engraving in colors measures 13½ x 9½ inches and shows an ideal spot in the Swiss Tyrol, flowers blooming in the foreground and a vista of snow capped peaks in the distance. The calendar is framed with sprays of Scotch thistle, as becomes the work of a great Scottish painter and the business souvenir of a firm bearing the ancient Scots name of Lindsay.

Among the especially attractive calendars for 1913 is one received from The Appleton Wire Works, manufacturers of four-drinier wire, washer wires, cylinder covers, etc., Appleton, Wis. This art calendar is quite a pretentious affair, on heavy cameo card measuring 30 by 23 inches, and is a beautiful reproduction in colors of an original painting by John Fery, entitled "The Seats of the Mighty," the subject being the Iceberg Lake in the Glacier National Park, Montana.

Death of Elmer S. Farwell

[SPECIAL TO PAPER]

Kansas City, Mo., Dec. 16—There died here last Friday, of pneumonia, in the fiftieth year of his age, Elmer S. Farwell, former professor of steam engineering in Columbian University, Washington, who was for some time identified with the International Paper Company as steam engineer. After leaving the International Paper Company, in 1902, he opened an office as consulting steam engineer at 309 Broadway, New York, and was employed in consulting work on steam power plants for many of the best known companies in the pulp and paper industry. During this time he built the mills of the Yellow Pine Company at Corange, Texas, and subsequently was general manager of that company for about a year. Two years ago he moved to this city where he had been practising as a consulting steam engineer up to the time of his illness.

He was born in Morrison, Ill., in 1863, and was graduated from Rensselaer Polytechnic Institute with the degree of C. E. in 1891. He later received the degrees of M. S. from Columbia University and B. S. from Washington University. He was elected to membership in the American Society of Mechanical Engineers in 1899.

Hammermill Company to Expand

ERIE, Pa., Dec. 23—Preparations for large extensions that will be continued next spring and summer were announced in an official notice given stockholders of the Hammermill Paper Company that a general meeting will be held at the company's offices on the East Lake road, February 14, 1913, to increase the bonded indebtedness of the plant from \$750,000 to \$1,500,000. The movement to double the plant was started some months ago and was carried out in part last summer.

From statements of the officers, it is understood that the proposed doubling of the bonded indebtedness is assured on account of the rapidly increasing business of the company. The Hammermill Company is one of the largest manufacturers of bond and office papers in the world. The company has been reaching out successfully for still greater business and expects to be prepared to meet any demand that will be made within the next five years.

New Process for Artificial Schappe

A new company has just been formed in France under the style of the Société La Schappe Nouvelle, Paris, to work a new process for production of artificial shappe. Few details are available, but the product is said to have several decided advantages over existing artificial silk or natural schappe for most purposes for which the latter is employed. That it is expected to be cheap is indicated by the statement that it will probably be a serious competitor of mercerized cotton in production of velvets. Goods made of the new material are asserted to be much superior in appearance to any similar ones at present on the market. The chief outlet for the new artificial schappe is expected to be in the manufacture of velvets. The capital of the undertaking is \$600, 000, and is being provided by an Anglo-French syndicate.

New Paper Stock Firm

William J. Green, for about five years with the firm of Marx Maier, 200 Fifth avenue, New York, has severed his connection with that concern and established himself with the firm of W. J. Green & Co., with office and packing house at 3 Howard street, New York, which will deal in all grades of paper mill supplies and make a specialty of grading and packing new cuttings and burlap bagging. Mr. Green is well known to the trade and solicits inquiries.

Union Sulphur Company is Branching Out

Consul General S. Listoe, Rotterdam, reports that the Union Sulphur Co., of New York, which controls Louisiana sulphur mines, has lately been negotiating with the Rotterdam city authorities, with a view to renting a suitable tract of ground having access to one of the harbors, upon which to erect a sulphur and other buildings. The firm named, which is the owner of several vessels, contemplated, in case satisfactory arrangements can be made, to make Rotterdam its headquarters for the manufacture and distribution of sulphur throughout Europe. The city of Rotterdam has offered a tract of land 330 by 420 feet, with dock facilities on the Maas Haven (Harbor), for which an annual rental of \$4,200 is asked, and it is expected that the company will accept the proposition.

The Paper Industry in Brazil

The following extracts from reports by the Austrian consuls for Parana and Sao Paulo relating to the year 1911 describe the condition of the paper industry in those important states of the Brazilian Republic:

"In the state of Parana the paper industry is limited to a small mill in Morretes. The erection of a large mill in Parana by an English corporation organized in London in June, 1911, under the name of the "Anglo-Brazil Power Shipping Corporation Limited" with a capital of 360,000 pounds sterling (\$1,751,940) will take place in the coming year."

place in the coming year."

"In the state of Sao Paulo the paper industry plays a not unimportant part. The largest mills are those of the "Companhia Fabrica de Papel." which has a capital of \$819,000 the "Companhia Industria Papelo e Cartonages," with a capital of \$163,800 and the "Companhia Melhoramento de Sao Paulo." The lastnamed company has a capital of \$2,457,000 and controls, a mong other industries, a large paper mill whose operations were greatly extended during the past year."

Swiss Market for Paper Towels

A prominent firm in Zurich, dealers in stationery and leather goods (whose address may be obtained from the Bureau of Foreign and Domestic Commerce, Washington, D.C.), has recently started to import a paper towel of German manufacture with the intention of introducing it into this market. The company now has two qualities in stock, one selling at 46 francs (\$8.88) and the other at 30 francs (\$5.79) per thousand. The firm would not disclose the name of the manufacturer or the wholesale price, but stated that, as this article was entirely new in Switzerland and the trade must now be worked up, it would be glad to secure the agency for Switzerland of an American line of paper towels, provided such towels could compete with the German product in the matter of price. Zurich, a city of 200,000 inhabitants and the commercial center of the country, would be the proper place in which to establish an agency for Switzerland.

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THE speed of the paper machine is under the complete control of the operator. He can start and stop the machine, and obtain any desired speed, by merely pressing control buttons. The speed will remain constant until intentionally changed.

The highest possible speed for each kind of stock can therefore be obtained and delays in handling the machine are reduced to a minimum, thus making maximum production possible. Since the speed, once fixed, remains rigidly uniform, the quality of the stock does not vary.

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Genuine Mitscherlich pulps a specialty.

Night Watchman or What?

The engineer of a jewelry factory slept in the engine room. He was awakened by the operation of the automatic sprinkler alarm and notified the fire department. The fire was put out before the department arrived. This time the man was quick enough. It is not always so.

A small fire on a lower floor of a large plant occurred while the watchman was at a distant point in the plant. He did not hear the automatic alarm and a great deal of water was poured from the sprinklers after the fire was out but before he discovered it and shut off the water. In this case the sprinklers did their part but the watchman, being neither automatic nor omnipresent, failed.

In another case, the watchman in a furniture factory found in operation three automatic sprinklers which had completely exoperation three automatic sprinklers which had completely extinguished the fire. Unfortunately he did not know how to turn off the water, but had to run to the engineer's house. This teaches two lessons—first, that all watchmen should be instructed as to the system; second, that the supervisory service always brings some one who does understand.

A fire originated in an overheated lead pot in the press-room of the Blade Printing & Paper Co., was put out by two Grinnell Automatic Sprinklers. When the firemen, who were called by the A. D. T. supervisory service, arrived, all they had to do was to shut off the water and replace the two heads which had fused.

An Electrical Elopement

We got this story by wireless. It filtered to us from the Telefunken Wireless Telegraph Company of the United States, by
way of the Crocker-Wheeler Company of Ampere, N. J., who
supplied the generators which generated the sparks which misled
the angry parent and saved an eloping couple a bad half hour.
The couple (the names didn't filter with the rest of the story) got
on a boat for Philadelphia where they expected to be married.
The girl's father got on to the fact that they were on the boat,
but too late to prevent them from sailing. But the young man
was resourceful. He looked up the wireless operator and told
him his story.

was resourcetin. He looked up the wireless operator and told him his story.

"He suspects where we are," he concluded, "and will meet us at the dock and throw me overboard, which will annoy my fiancee, and bring unpleasant notoriety to your boat."

"What do you want me to do about it?" asked the wireless operator sympathetically.

"I want you to speak to a friend on the Boston boat, and just

I want you to speak to a friend on the Boston boat, and just ask him to wireless for forgiveness and sign my name."
"What good will that do?"
"What good will it do! Why, the old man will meet the other

In a few minutes long sparks were leaping through the darkened air of the wireless room while the generators purred contentedly between decks. Did the irate father purr contentedly when he met the Boston boat? He did not.

Europe's Use of American Raw Material

Is it necessary to ship American raw phosphate rock all the way to Europe to have it transformed into the superphosphate that is so valuable as a fertilizer? The exports of raw phosphate rock to Belgium in 1910 were valued at over \$400,000, and the imports of superphosphates from that country for the same year were valued at about the same amount, according to a statement by Consul Thomas H. Norton, of Chemnitz, Germany, in a monograph on the chemical industries of Belgium, Netherlands, Norway, and Sweden, soon to be issued by the Bureau of Foreign and Domestic Commerce. It is Consul Norton's opinion that the superphosphates could be made more cheaply at home. Other striking anomalies in our foreign trade are discussed in the report. Attention is called to the successful manufacture of oxalic acid in Norway in connection with the lumber interests. So far this industry has not been extensively established in this country, although the primary raw material, sawdust, is plentiful. The monograph treats in considerable detail the various phases of the chemical industries and the trade in chemical goods in the four countries mentioned. Is it necessary to ship American raw phosphate rock all the way

Silk from Wood Pulp

Arrangements have been completed for the establishment of a silk manufacturing works at Beverley, East Yorkshire. Provisional agreements have been entered into for the purchase of about 12 acres of land as a site. A West Riding firm are the principals in this new venture. Imitation silk is to be manufactured from woodpulp.

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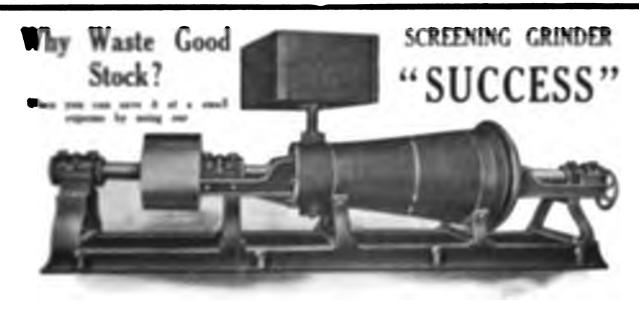
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The Heller & Merz Co.

1 1.214

Aniline Colors

Parsons Trading Company Paper and Pulp

DATTERS PLACE. NEW TORK



NEW YORK, December 24, 1912.

MECHANICAL PULP

Conditions governing the water supply in practically all sections of the country continue favorable, and grinding plants have been running full time and accumulating supplies to meet the winter demand. Deliveries on outstanding contracts continue large and there appears to be no immediate prospect of a let up in the call for supplies in the near future owing to the large movement of newsprint into consumption and bookings of sizable lines, which bid fair to continue for some time to come. Prices meanwhile, are maintained firmly at our quotations.

FOREIGN AND DOMESTIC CHEMICAL PULP

Firmness continues to characterize the market for chemical fiber and views of shippers relative to prices on invoice lines for distant deliveries reflect the upward tendency of values. Cable offerings of sulphite pulp for distant shipment were made at prices mostly above buyers' views, which has restricted business on any large scale. Inquiries for lots for prompt delivery and withdrawals on outstanding contracts have been numerous since our last report. Arrivals in the interval, comprising good cargoes have passed mostly into direct consumption, which accounts for the light offerings of pulp ex-dock. Quotations remain firm but quotably unchanged, with prospects favorable for higher

Sulphite, foreign-		
Bleached, ex dock .2.80	@	3.25
Unbl'h'd, ex dock , 2.05	@	2.35
Sulphite, domestic-		
Bleached 2.70	0	2.85
Unbleached2.15	@	2.30
Soda, domestic-	10	
Bleached2.25	66	2.35

Soda, foreign— Uno'd Spruce, ex		
dock 1.90 Bleached, ex dock . 2.85		
Imported Kraft pulp1.95	@	2.10

BAGGING, ROPE, ETC.

Under a steady movement of the various materials into consumption, together with a good buying movement of invoice lots in various positions, the firmness of the market is well sustained. Limited stocks in the primary markets, with no disposition manifested on the part of shippers to urge sales, together with a seasonable demand, serves to hold values firm, particularly on forward shipments. In most instances slight advances have been established on wool tares and rope, while No. 1 gunny is now held at 1.50 and 1.60 cents.

Gunny, No. 1-			Woo
Domestic 1.50	GB	1.60	Fore
Foruga 1.50	65	1.60	Don
Light Burlay 1.20	00	1.30	New
Mized Bagging85	60	.90	tir
Sound Bagging	GB	1.00	Flax
Wood Tures, light 1.20	64	1.30	-

Wool Tares, heavy 1.20 @	1.25
Foreign Manila Rope 2.45-@	2.60
Domestic Rope 2.45 @	2.60
New Burlap Cut-	1 85
Flax Waste, washed .1.80 @	

IMPORTED RAGS

Transactions in all kinds of rags continue on a liberal scale and bookings of orders both in the nature of withdrawals on outstanding contracts and new business, have included sizable invoices at steady prices. Cables from primary markets note a good demand, moderate stocks and prices maintained firmly at the previous range, except on some varieties in which a slight advance is asked based on scarcity of spot supplies.

Garman	Blue	Cot-			
5994			1.65	04	1.70
Diston B	MANS		1.80	65	1.85
LAKELS Pri	456		1.80	65	2.00
Exten Lin	dut Pris	16s 2	.00	64	2.25
Bow Min					
Thew I say					

Old Linen, White 3.75 @	5.25
Old Linen, Gray 2.75 @	4.59
German Colored Cot-	
tons	
Medium Light Prints1.50 @	
Old Linen Blues 2.37-@	
Dark Colored Cottons1.20 @	1.30

A steady to firm tone pervades the market under a general alcounce of selling pressure and a seasonable inquiry. Holders a most instances adhere to former values, though slight advances are been named in new dark and black cottons, also thirds and

New	Shirt	Cuttings,			N	lo. 1 Whites	4.0
No	. 1	5.	75 @	6.20	8	oiled Whites, str	eet . 1.5
New	Shirt	Cuttings.			8	oiled Whites, ho	use . 2.2
No	. 2	Cuttings,	75 @	4.30	T.	hirds and Blues	1.7
anc	y Shirt	Cuttings 3.	90 @	4.00	S	atinette Garmen	its _1.0
		ottons3.			N	lo. 1 Satinettes.	9
Vew !	Dark C	Cottons 1.	00 @	1.10	N	lo. 3 Satinettes.	8
		econds 3.				lo. 1 Tallors' Rag	
		Oottons 1.				lard Black Carpe	
			-			The second second second	

OLD PAPERS

There continues a steady movement of supplies into channels of consumption and new business transacted in the interval has included fairly large lines, particularly of the lower grades of paper. No price changes of importance have come to the surface since our last, and sellers as a rule continue to adhere to current quotations.

The second of th			
No. 1 Hard White			Extra New Manila
Shavings2.45	0	2.60	Cuttings1.30 (
Shavings2.45 No. 2 Hard White	-		New Manila Cuttings1.05
Shavings2.10	6	2.15	No. 1 Old Manila 60
No. 1 Soft White	9	-120	No. 2 Old Manila 45 (
Shavings1.75	a	1.80	New Box Board Chips .55
No. 1 Colored	9	2,00	Bogus and Mill
Shavings	a	95	Wrappers55 (
No. 2 Colored	9	,00	Strictly Overissue
Shavings	a	60	News
Magazine Flat Stock .85			Folded News
			No. 1 Mixed News 48
No. 1. Crumpled 75			
Solid Ledger Stock 1.65			No. 1 Mixed Papers. 4714
Ledger Stock 1.40			Common Papers 35
No. 1 White News1.25	(0)	1.30	

TWINES

The business in twines during the interval has been principally in the nature of withdrawals on outstanding contracts, while transactions at first hand show a further falling off, as is usual at the approach of the holiday season. In the absence of selling pressure and continued firmness of prices for the raw materials the recent appreciation of values on the finished products is well sustained.

Sisai Hay 9	(4)	859	Jule Twines, 4 55 & 0 0 55		10
Sisal Lath Yarn 71/2	0	8	Marline Jute, 416 . 916	0	10
Manila Rope13	0	14	Marline Jute, 6 936	@	10
Manila Rope No. 2 . 11	0	13	Marline Jute, 7 9	0	934
Jute Rope 71/6	0	8	Marline Jute, 8 & 9 . 814	@	9
Jute Wrappings, 2			B. C. Hemp, 18 1732	0	1836
to 6 ply-			B C. Hemp, 24 17		
No. 111		12	B. C. Hemp, 36 161/2	0	1736
No. 210	@	11	B. Hemp, 18 1834	0	1936
Jute Twines, 18 121/2	@	1336	B. Hemp, 2418		
		13	B. Hemp, 36171/		
Jute Twines, 36 111/4	@	121/2	Amer. Hemp, 41/2&613	@	14

CHEMICALS

Trading in the various chemicals continues fairly active and prices on the whole are maintained with noticeable firmness. Bleaching powder is held with more confidence and transactions during the interval included parcels at 1.35 cents and upward, as to terms of sale. Brimstone closed steady at former values, ranging from \$22 and upward per ton. Transactions in the as to terms of sale. Brimston, the ranging from \$22 and upward per ton. Transactions in the Continued on page 40



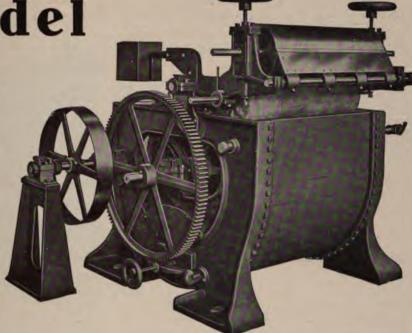
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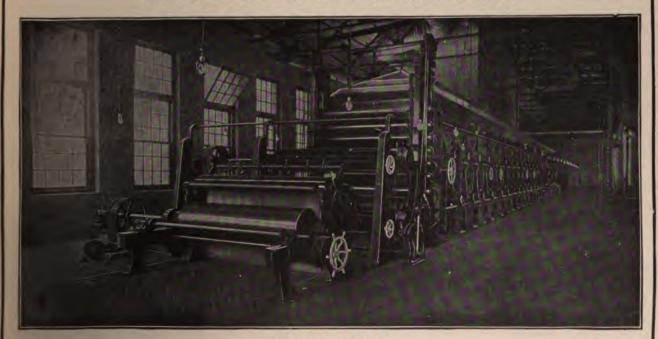
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A second of the second of the

Man-

And Distance

to v S. Jones & C. See Bilgaria, Hamburg, 2,782 bs. 348 tons, woodpurp, 4,5 os. bagging A. Klaston & Co., by same, 690 drs. bleaching powder. Price & Porce, by same, 320 bs. 40 tons, woodpulp. Atterbury, Bros., Str. Wimfredian, Liverpool, 124 bs. waste paper.

offer conflict a breation by same, 435 bs. waste paper.

offer conflict a breation for Arkansas, Copenhagen, 302 bs.

in the restriction a breation for Lancastrian, London, 163 bs.,

offer conflict another laner.

Therian. Manchester, 175 bs. 185 of twines.

Therian. Manchester, 175 bs. 185 of twines.

Therian Manchester, 175 bs. bagging.

Therian of the Manchester Antwerp, 242 bs. bagging.

Fireign Prip and Paper Notes

many the interpretable has been formed to establish and milest hearmann near Adelsheim, Germany. It is to not need of many and negotiations are in progress for the section of the section of the section.

to make the r Voice Type which hitherto formed part to meanwhite the company of Darblay & Co., has just the reserve the a company, with a capital of 1,050,000 to the light that the reserve the control of M. Warin, director of the light and miles of the light that the control of the light that the light th

The trust is a sinconcern at Brussels, Belgium, of a comtant of the trust of sparto pulp by an electrochemical mean trust is similar that the companies with a capital To no may start our in 17,000 shares of 100 france each. It is not to the trust spart, will receive as his portion,

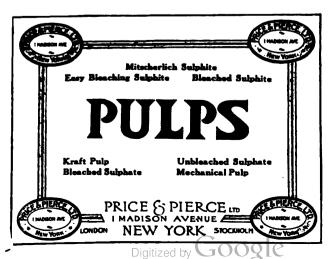
The area of the Arminoff at Niederence, near Neheim, and will be replaced by an electrical plant.

The area of the replaced by an electrical plant, the area of the finders employees who had been with a control of the area of 100 marks, those with a control of the area of 100 marks.

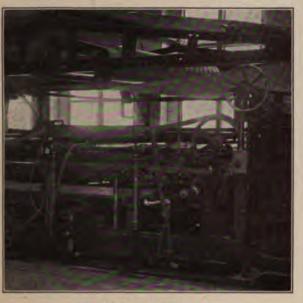
The annual production is as in the present there is no in-

Water Power Project in Russia

Neglections to been going on for a long time respecting the size in the Ramonal waterfalls on the River Vuoxen, and an account that now been mached under which the proprietors as not now mach to a report by Consul General John H. Therefore Solve I have a report by Consul General John H. Therefore Solve I have fall is 48,469 horsepower. It is said that the purtage of empiate delivering the current to be generated by the min of a Petersburg for power. The capital of the proposed among studieste is \$20,000,000. The bank named is also neglectaring, so it is said, for the purchase of Vallinkoski Falls, to second in importance on the Vuoxen River, which will yield \$49,90 offsetive horsepower.



Acme Shakeless Deckel Frame Supports



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147 Paper Machines

¶ Every one of these Supports is giving satisfaction and saving endless trouble to the paper mill.

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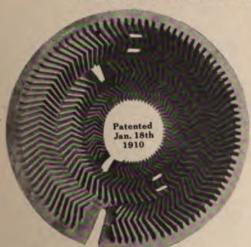
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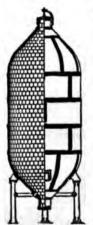
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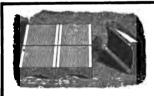
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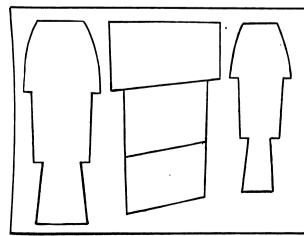
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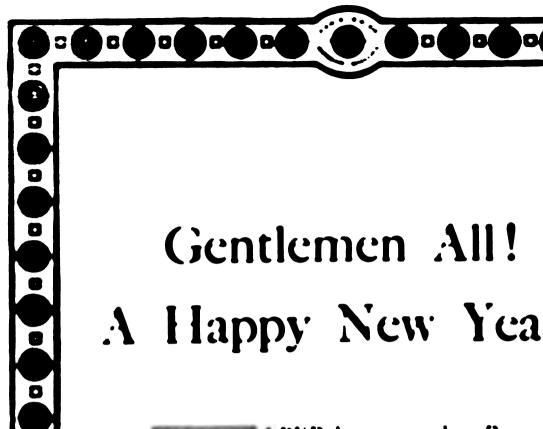
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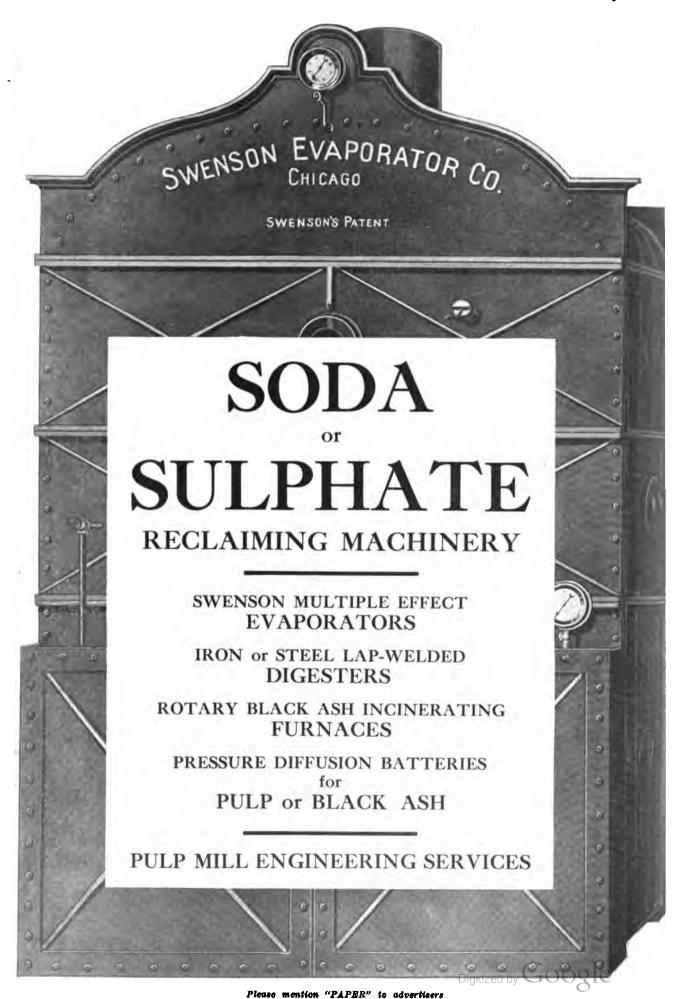
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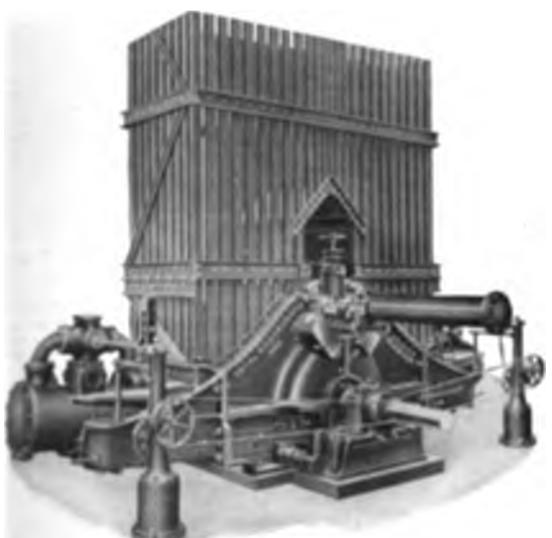
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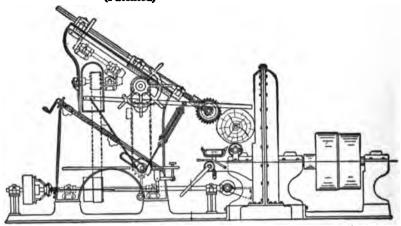
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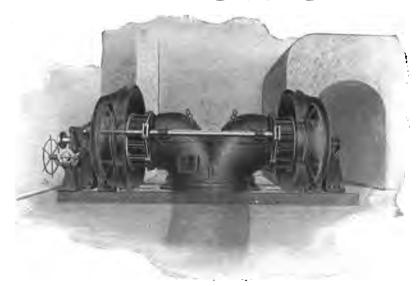
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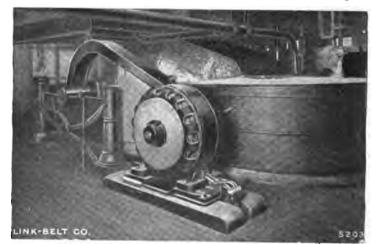
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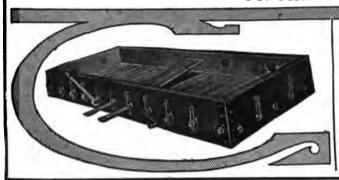
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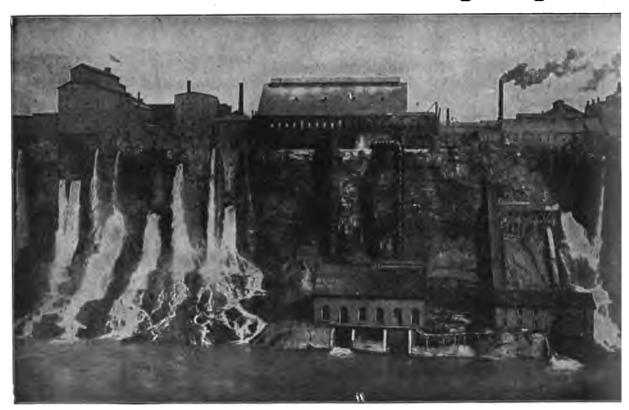
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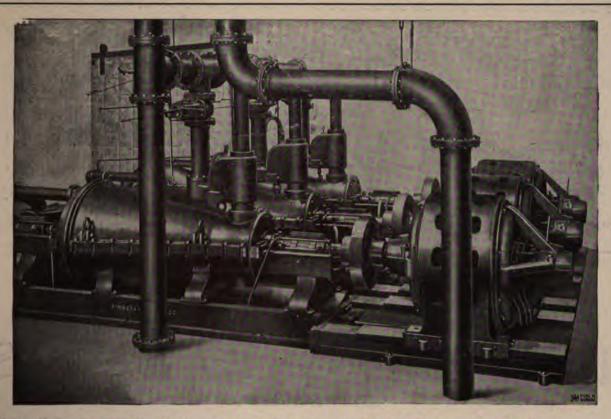
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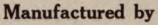
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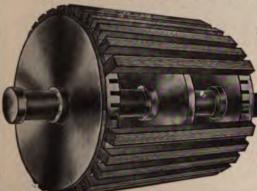
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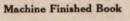
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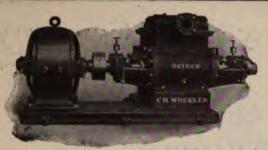
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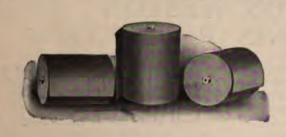
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Vol. X

JANUARY 1, 1913

No. 3

The Manufacture of Swedish Filter Paper

Notes of an Interesting Process—The Furnish and Beating—Made Porous by Freezing

By GUSTAF FORNSTEDT



HERE are many different qualities of filter paper, depending upon the use for which they are intended, and they range from an ordinary filtering paper for household use to the fine double-extracted, ashless filter paper intended for very particular analytical work. As a rule the ordinary qualities are machinemade, while on the other hand

the finer qualities are handmade.

Machinemade filter paper includes among other varieties beer-filtering paper, a paper of about 180 lb. weight, made chiefly from cotton rag and used for filtering beer, as well as for the ordinary filtration of water. The paper is cut square and has 1½ inch round holes perforated in each angle for the insertion of four metal bars on which the paper, alternating with perforated zinc-plates, is threaded and screwed firmly together. Through these layers of paper and zinc the beer or other liquid is passed at a pressure of about 0.6 atmosphere; the dirt and impurities remain on the paper and the clean and clear liquid passes through.

Machinemade filter paper is used chiefly in the household and for technical purposes, while handmade filter paper for scientific analyses is of better quality, though of different grades and make, according to the character of the analysis to be made. The paper being more or less quick filtering it is made with regard to whether a mere purification of the liquid is intended or whether the substances collected on the paper are to be

qualitatively or quantitatively determined.

Some qualities of filter paper, as white and gray woolen paper, are made generally in small paper mills which are not equipped with steam boilers. The rag is furnished "raw" in the beaters and beaten free, but care is taken to avoid lumps. The paper is made on a cylinder machine and taken wet on the hasp from where it is cut by hand and hung up for drying. A rough mottled surface is produced by means of a coarse wire cylinder running on the wet paper web, the impression remaining very plainly after the paper is air dried.

The cleanest rag is of course used as material for filter paper, and it must be of the best quality and sorted with great care. It is important to pick out buttons and any pieces of metal that may be carried by the rags. In new cuttings from shirt and collar factories, used in the finest qualities, stray pins and needles give rise to much work and trouble. Iron is, of course, one of the worst impurities in a filtering paper.

The rag is boiled with sodium hydroxide (NaOH), because it gives a lower percentage of ash than lime, and for the same reason the old method of bleaching the halfstuff with chlorine is preferred to the use of chloride

of lime in bleaching hollanders.

For chlorine bleaching a mixture of manganese, salt and sulphuric acid is used in leaden retorts in about the following proportions:

							Parts						
Binoxide of manganese.			2									8	
Sodium chloride				Ų.		Ü.						6	
Sulphuric acid												5	

Usually, however, a greater quantity of salt is used because it contains a considerable amount of water.

After the rag is boiled, washed and beaten to halfstuff, it is dried in a centrifugal dryer and spread in layers on wooden poles in the bleaching chamber. This chamber is of concrete, lined with wood. After the bleaching chamber is filled with halfstuff the door is closed and chlorine admitted through an aperture in the roof. After all air has been withdrawn from the chamber it is well sealed and the halfstuff, after absorbing the chlorine for several hours, is effectively bleached. Of late in some mills this bleaching process has been considerable simplified. Liquefied chlorine pressed in steel bombs is used. The bomb is placed in hot water on a scale, a valve on top of the bomb, connected to the bleaching chamber with a rubber hose is opened, and a certain amount of the liquefied chlorine makes its escape in the gaseous form and is so forced into the bleaching chamber. Digitized by GOOGLE

The analysis of boiled and bleached halfstuff shows the following ash percentages (silica and lime):

New shirt cuttings, No. 1	0.039
Old linen, white	0.132
Old linen, gray	0.140
Colored cottons	0.177
White cottons	0.107
Sulphite, bleached	0.298
Soda, bleached	0.4

It is, of course, a matter of great importance that the water used in the manufacture of filter paper should be as pure as possible, but it is impossible to avoid some ash-containing matter from being introduced to the halfstuff with the water of manufacture and in the transportation of the halfstuff and the process of drying. Generally the increase is from 0.02 to 0.05 per cent, depending on the state of the weather and the condition of the water.

The time consumed in beating varies according to the nature of the material. Halfstuff freshly bleached requires longer time than that which has been stored some time. Neither too free nor too slow stuff should be used for filter paper. Stuff that is too slow retards filtration—meaning the time taken for a given quantity of water of a certain temperature to filter through a paper of specific diameter. Paper made of too free stuff fails to keep back the finer grained sediments, such as sulphate of barium, etc.

Among the considerations to keep in mind in the manufacture of filter paper are the rate of filtration demanded, the ash content, resistance to sulphate of

barium, fine holes, weight, and impurities.

To produce a filter paper of low ash percentage requires treatment with hydrochloric or hydrofluoric acid or a mixture of these acids, which will remove impurities like ferric oxide, alumina, lime, magnesia, and silica, and paper so treated is practically a pure cellulose paper. With hydrofluoric acid silica is removed, and with hydrochloric acid the other substances enumerated are dissolved away. After treatment with acids the paper should be thoroughly washed with distilled water to remove the last traces of acidity.

To test the neutral reaction of the paper after washing, a solution of nitrate of silver is used to advantage. The wet paper is squeezed with the hand over a glass funnel and the water filtered into a test tube. In another test tube containing distilled water a few drops of test solution of nitrate of silver are added, and the same quantity is added to the water expressed from the washed filter paper. The two tubes are then compared against a black background. If not neutral the water from the filter paper will show an opalescence due to the formation of insoluble chloride of silver from the chlorides remaining in the paper, and further washing is necessary. After this treatment the paper is pressed and hung out in open barns in order to freeze it.

By freezing the paper is made soft and porous, since the ice crystals formed in it serve to drive the fibers apart. Because of this the finest qualities of filter paper only can be made in the winter time in cold

countries.

Experiments have been tried of subjecting paper that has been dried in a warm atmosphere to a subsequent freezing operation in order to impart the desired softness and porosity, but it has been found that paper treated in this way does not become soft and it never comes up to the standard of the best Swedish filter paper.

Extracted filter paper is practically ashless, the ashes amounting to about 0.015 per cent of the weight

of paper and is often negligible, not being taken into account in quantitative analytical work.

The most careful accurate work is necessary in any determination of the ash content of a paper. The instruments required consist of a spacious drying apparatus of copper, two exsiccators, one large and one small, a platinum crucible (about 0.7 ounces) with cover, a stand, a spirit lamp, a blast lamp or Bunsen-burner, and a particularly exact balance scale.

The larger exsiccator is used for the dried paper and the smaller for the platinum crucible. Every time the crucible is used it must be cleansed with the finest sand, which has been previously boiled in diluted hydrochloric acid, dried, fired and kept in the exsiccator until the next time it is used. The scale placed on a table fixed to the wall ought to be of superior construction for fine analytical determinations. Soot must naturally be guarded against in the incinerating operation as the particles would lead to error in the weighing and conduce to an early deterioration of the crucible.

The manipulations are as follows: The sample is first dried in the drying apparatus at a heat of 190° to 210° F. It is then transferred to the exsiccator for 15 minutes, and afterwards cut in small pieces and put in the cleaned and weighed crucible. The crucible is supported on its stand and the cover adjusted so that air may enter. The crucible is first heated red hot, at which point the hydrocarbon volatilizes; the heat is then increased for 20 minutes until the crucible glows white hot. After the ash turns white or gray-white the crucible is placed in the exsiccator for ten minutes and weighed; the incineration is then continued until a constant weight is obtained.

If the crucible weighs a gramme, the crucible and paper b gramme, and crucible and ash c gramme,

the following formula is obtained:

Paper and crucible	=	b Gm.
Crucible	=	a Gm.
Paper	=	(b-a) Gm.
-		
		a Gm.
Ash and crucible	=	c Gm.
Crucible	=	a Gm.
Ash	=	(c-a) Gm.
		
		b Gm.

The following figures giving the analysis of ash from fine filter paper are of interest:

I	п
Prof. V. Wich:	Professor Brunner:
SiO ₂	$SiO_2 \dots 30.63$
Al ₂ O ₃	Al_2O_3
Fe_2O_3	$Fe_2O_3 + P_2O_5 \dots 5.08$
$P_2O_5 \dots 0.238$	MnO 174
MnO.Mn2O2	MgO 7.84
MgO 11.301	CaO 26.28
CaO 21.381	Alkali 13.57
Alkali 2.162	
SO ₃ 1.684	100.00
100.000	

The best filter paper is made in Grycksbo, Sweden. In the work of manufacture through a long period of years a practical and effective method of extraction has been employed. Being the most northerly handpaper mill in the world there is a long splendid winter which is favorable for freezing the paper. The water is clear as crystal and practically chemically pure, having its origin in the Dalecarlian mountains. Berzelius, the world renowned chemist, esteemed the Swedish filter paper to be the best in the world and the mill still

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Investigating Substitutes for Wood

The Search for New Papermaking Materials—Pulp from Sugar Cane Pith—New Plant Fibers

oME interesting observations regarding substitutes for wood in the manufacture of paper are contained in the recently issued annual report of the Chief of the Bureau of Plant Industry of the U. S. Department of Agriculture. In the search for fibers that may serve as substitutes for wood in the manufacture of paper, special attention has been

given, the report says, to a continuation of the studies of cornstalks, of broom-corn stalks, and of rice straw.

The numerous lots of materials collected or grown for use in the laboratory and mill experiments included three carloads of carefully harvested cornstalks for food-extract production on a large scale and a ton of papyrus tops imported from Palestine.

As a result of the work accomplished, the conclusion has been reached that materials better suited for special purposes must be found rather than something cheaper than those now in use. In line with this conclusion, more emphasis will be placed in the future on the production of crops especially for papermaking.

Among the digestions made in the laboratory at Washington have been those of sugar-cane pith (a by-product of the diffusion process of making sugar), vetiver grass (a plant which yields a soap-scenting material), Nolina texana (a yucca and sotol relative), flax straw, castor-bean stalks, palmetto leaves, hop vines and papyrus. An attempt is now being made to work out methods of cooking specially suited to each material. Preliminary tests that promise well have been made to determine the suitability of hemp pulp, produced by the soda process directly from retted stalks. Handmade sheets are prepared from all pulps. A specially constructed pulp screen has been devised which greatly facilitates the work. In all laboratory digestions determinations are made of optimum steam pressure, per cent of cooking reagents, and yields of fiber.

During the year 54 cooks of soda pulp have been made. Rice straw is a promising material, but the problem of soda recovery must be worked out or methods of cooking must be devised which will make recovery unnecessary. Rice-root grass tops (a waste product of the zacation root-brush fiber industry) have yielded an especially promising pulp, closely related to that of poplar. The hemp materials are especially promising. The cornpulp yields were the most satisfactory thus far obtained. Lack of funds prevented the consummation of plans to experiment with pith pulp for the manufacture of paper specialties.

Sixteen cornstalk extractions were made in large rotary digesters of 3,000 pounds capacity. Between 800 and 900 gallons of extract were produced, containing about 40 per cent. of solids. In cooperation with the Bureau of Animal Industry, the extract was used in feeding 8 milch cows. The experiment was continued over a period of 110 days and gave encouraging results.

In connection with the production of extract a large quantity of pulp was produced. A test of the resistance of cornstalk pulp has been carried on with this material. It was stored wet and unbleached in a drainer and wet down from time to time. After eight months of wet storage, paper of good quality is still being produced from it. The stored pulp has been

found to bleach more readily than that worked up immediately after cooking.

During the ensuing year especial attention will be given to flax-straw investigations in the hope of finding suitable methods of handling the raw material and of cooking and bleaching the same. Hemp stalks, both retted and unretted, and hemp wastes will receive attention. Other work will include a study of the individual variables in the cooking of different materials and a critical comparison of the celluloses obtained from them. Tests will be made of corn pith for making various pulp products, diffusion methods of extracting food by-products, and soda recovery from rice-straw liquors. Field work with flax, hemp, esparto, and other plants will also be prosecuted.

STUDIES OF PLANT FIBERS

The investigations of plant fibers have been continued in charge of Lester H. Dewey, who at the beginning of the fiscal year attended the first world congress and exposition devoted exclusively to plant fibers. He presented three papers and took an active part in the discussions. The many different kinds of fiber-producing plants growing on the exposition grounds, the great collections of plant fibers, the fine display of fiber-cleaning machinery in operation, and the conferences with men especially interested in fiber-producing plants from all parts of the world afforded exceptional opportunities for gleaning valuable and accurate information.

About 3,000 bulbils of Agave cantala, the most promising fiber agave of Java and the Philippines, have been introduced and set out in cooperative trials in Porto Rico and on the Florida Keys. Henequen, sisal, and zapupe plants set out in Porto Rico in former years are growing well, and many of them are now ready to yield their first harvest of leaves.

Experiments with hemp demonstrated that the crop can be successfully grown in Wisconsin and that fiber can be prepared in a satisfactory manner by machinery. The interest aroused has caused some 200 acres of hemp to be planted this season.

The work of breeding flax for the development of improved strains for both fiber and seed has been continued. Laboratory tests indicate a distinct improvement in the third generation of selected plants. Experiments regarding the deterioration of fiber strains of flax from American-grown seed have been begun in Minnesota.

Many requests for information about ramie have been received, and a circular has been prepared for use in answering them. Experiments in the cultivation of ramie under irrigation have been begun in California.

The crops of leaves of sisal, henequen, and zapupe will be harvested when ready in Porto Rico and Florida Keys and a study made of the relative merits of several different kinds of hard-fiber plants introduced there. Efforts will be made to induce farmers to increase the cultivation of flax to supply the increasing demand for seed. Experiments with ramie will be carried forward to secure more definite information regarding the production of fiber and possible profits in growing this crop. Plans are being made for the extension of this work to Louisiana and Porto Rico.

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the top of the

is a gigantic affair, 250 feet long and

with its apex

175 feet above

the ground. It is evident that if the

pulpwood

were dropped from the tod

of the stacker, it would make

a conical pile, 175 feet high

and about 350

feet in diameter on the ground. This

is exactly

chimney.

A Gigantic Device for Handling Pulpwood

Views of a Remarkable Conveyor and Stacker at the Mill of the Brunet Falls Mfg. Co.

By E. P. HUMPHREY, Appleton, Wis.



UNIQUE pulpwood handling device, the only one of its kind in existence, is being installed at the mill, now under construction, of the Brunet Falls Manufacturing Co., at Cornell, Wisconsin, on the Chippewa river, and is described and illustrated herewith. By the use of this "stacker," as it is called, together with the system of

concrete troughs, and hydraulic handling of the wood, it is expected that about 40 cents a cord will be saved as against ordinary methods, in the various operations of taking the wood from the cars, putting it in stock pile

transporting it from the stock pile to the mill. It will become evident further on that all the hand labor required for these different opera-tions will be confined to the men who dump the wood off the card into the receiving tank, with one man at the end of the tank to guide

WOODYARD AND STACKER FROM TOP OF CHIMNEY

the wood on the conveyor taking it to the saw, and one man at the stock pile to start the wood down the concrete trough which leads to the mill, and finally one more man at the mill to guide the wood to the conveyor

which takes it to the barkers.

It should be stated at the outset that one of the novelties of this woodhandling system is that all the transportation of the wood, except the singleoperation of putting it on the stock pile, will be done by running water in concrete troughs. As be

pen, except that the first wood to form the pile will not be dropped at once from the vast height of 175 feet. The stacker is so constructed that wood may be dropped off the conveyor within it at any point between the

shown further on the danger of interruption of oper-

If he has not already done so, the reader should now

refer for a moment to the plan and photographs, after

which the following description will be easier to under-

stand. On the plan the curious egg-beater-shaped figure represents the system of concrete troughs, the

curved troughs all connecting with the straight trough

which leads to the mill. When the stock pile is in place

the curved troughs are under the pile, but the wood

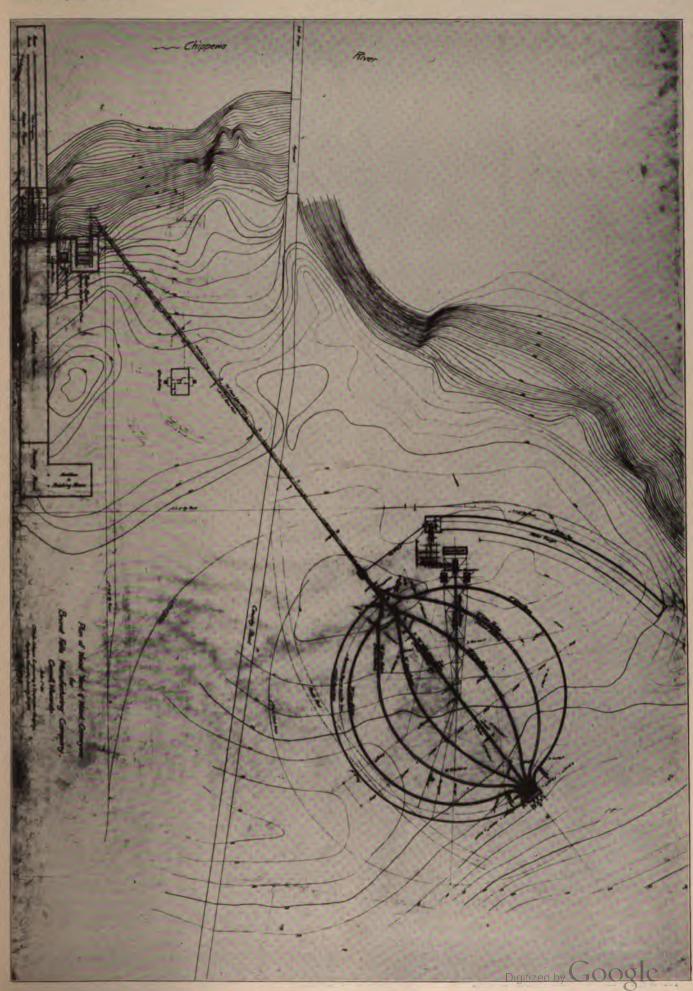
does not fall into them or choke them because they are

covered by heavy plank covers. The stacker can also be seen on the plan and in the photograph taken from

ation by frost in the winter time is guarded against.

THE UNLOADING POND IN THE WOODYARD

base and the top. The pile therefore will be begun modestly near the base of the stacker, and will gradually grow until at the end the wood may be carried to the very top of the stacker before being released. It is estimated that more than 30,000 cords of wood can be accommedated Digitized by Cinthe stock



He is bright a set of the set of

The countries of a territory of a 7 th to the transcorred in the motions of the more of the into particulario di molitico. Della diena di la compania di la co throughout the training asken to the last land are tr 5.400 athres fee it area bear in a suit. The bear s let dewn in the han, but a center minemaker in the extremely of the only similar training eating tran-the story pile to the mill. The where stated from the act bend by a ben-nen -northing bund, and through a ten-non time and in the institute as number the significant क्लाब्या, क्रु.च. चार न ex अर्थ, बार्च ब्लन्याच वार न ex अर्थ To the thirth-life. There is the place represented to the plan by the taken (the femi-tenter vicerery of all the primary state of the religion of the primary that is the primary state. to the any struggly routh earner has a tile mill At this young mere is an arrangement of these vigerials the water can be size for an and see a second leading under the pile. The vares view measures of one of these traducts, will therefore, for the games through the tribing inder the tile, and how the only straight trough tack to the hot point. The rough the 22 inches wide and apput 3 feet been walle are vivid s 24 inches while the 100000 reset seen while the votal's 24 inches long. Therefore there are so in again, and wood that has once started bown the trought will go straight through. It can be seen then that wood can be taken as easily from the back side of the pile is the front of the pile. By incomming a stope of the trough desired and stationing a stope of the start the wood properly down the trough. There are two provisions against frost. One is the use of the water from the box mond is described on the stope is water from the hot poind as described and the other is the laying of a three-inch steam time on the long straight trough and through all the trough anisotic pile. The pipes in the troughs under the time are perforated, and in case of fire in the tile live steam or like? forced through the pile from the bottom, which would quench the flames.

There is still one very important trough that has not been mentioned. It is the "unloading poind" shown in one of the photographs. It is also shown on the planextending in a curve away from a point near the base of the stacker. This unloading pend or trough is about 500 feet long, 20 feet wide and contains about 5 feet of water coming from the hot pond. It is bordered by sidetracks. The wood is brought in on cars on these tracks and is rolled off the ears into the water of the unloading pond. The current in the pond carries the wood down to the end of the pond near the base of the stacker. A man stands there and guides the wood on the conveyor which takes it up to the saw (see the sawmill in the photograph near the base of the stacker. The saw has a capacity of about 200 cords a day. Cut to 2 foot lengths the wood goes by another conveyor from the saw to the stacker, and thence by another conveyor up the stacker such a distance as desired and there dropped upon the pile. As before detailed the wood is then taken from any desired part of the pile. through the troughs under the pile to the long straight trough, at the end of which it goes into the hot pond, and is from there lifted by another conveyor to the rossing room over the boiler house.

Practical Suggestions

Tennica, Notes from German Mills

From the enumerate of the nollander, from rust in pipe products for us, hooks and lockles in the rags, etc. I sufficient to summer hollander with a device that will so w numerically any dropping of the rolls. The tring so and receive the most careful attention and the half suif. Bretany diluted, should be carried to said this. Magnetic takes are only effective when from the transfer is so are built into the said trap of the machine a transfer suif must circulate through them. It is the paper mile 5 takes picked 20 grains of iron takes from the pounds of stuff.

CONTRACTOR SERVED STATE OF TURBIDITY

The steer opportunity of the hollander in a fine paper milk was manufact for assisting turbidity in the stuff when most steel tables was being made, the stuff in parts of the teclarates was being made, the stuff in parts of the teclarates of their with copper showing less clouding. The steel open presented a bright, clean appearance of the steel opens. In place of copper lining, a cost of a fine papers, the concrete hollander that has been above a lean smooth cement coat or a tile immals steel above to be quite certain that the alum causes to their countries in it is customary, in some mills, only not the distributing box of the stuff vat.

New Papermaking Material

As a struct is given in the Journal of the Society of non-val Industry of experiments with new materials is the manufacture of paper.

The materials examined were: (1) papyrus from the South and the East Africa Protectorate; (2) Spanish the Latt in Polar from the Transvaal; (3) a species of Armini from the Transvaal; (4) the petiole and the fine "Nipa" palm from the Federated Malay States. 5 Brassus dubellifer leaves from Mozambanes, and 6 leaves of a species of Bromelia from Brank. The results show that all the materials mentioned can be converted into pulp suitable for the manufacture of paper, but they give somewhat low yields of pulp, and the materials probably not be worth more than about £3 per ton in the United Kingdom and hence could not be profitably exported. They might however be converted into "half-stuff" for exportation, or used locally for the manufacture of paper.

An Experimental Evaporator

THERE has just been installed in the industrial laboratory of the Massachusetts Institute of Technology, of Boston, a standard double-effect Swenson Evaporator equipment. This will be used by the students in studying the principles of the economic concentration of liquids, and will also be used for making commercial tests. For this latter purpose it ought to be of considerable importance to chemical engineers in the vicinity of Boston who occasionally require apparatus of this character to complete processes which they are studying or developing.

A similar installation, erected some little time ago for the Armour Institute in Chicago, is also available for making commercial experiments at a reasonable charge.

Work of the Government Paper Laboratory

M ISCELLANEOUS investigations which are the subject of notice in the 1912 report of Dr. R. E. Doolittle, acting chemist of the Bureau of Chemistry of the United States Department of Agriculture, include the work of the leather and paper laboratory, of which Mr. Veitch is chief. The report says that experiments have been continued on the utilization of waste longleaf pine for the making of paper and the recovery of wood turpentine, rosin oils, and wood creosote. These results confirm the opinion formerly expressed by the bureau that the utilization of the waste pine timber of the South from the cut-over lands is one of the most promising fields of industrial development which exists in the country.

The work on a new method of cooking with gaseous chemicals has been continued as opportunity offered. Cooperative work with the Post Office Department through the laboratory at Dayton, Ohio, has been continued with satisfactory results. Routine work is also being done for the Post Office Department, the Bureau of Engraving and Printing, and the General Supply Committee in the testing of paper bought on contract and in the testing of samples for contract supplies. The chief of the laboratory has served with the Committee on Paper Specifications to the Joint Committee on Printing of Congress in the preparation of specifications and proposals for paper bought by the Government Printing Office. The report of this committee, which followed in general the lines suggested in Report 89 of the Secretary's office, was printed and adopted and the papers of the Government Printing Office are now bought in compliance therewith.

Standard, nonfading type samples for rosin have been devised. It is believed that the use of these type samples—which should be certified or at least checked by the Government, as millions of dollars change hands annually on the grading of rosin—will greatly promote the correct grading of rosin and at the same time prove more economical to the official graders. An instrument has been devised whereby the producer of rosin can easily grade his rosin at the still and thus know before shipment what grade of rosin he is sending to mar-

ket.

For a great many years turpentine has been sold on the great turpentine markets of this country on the basis of its color according to standards prepared by the naval stores committee of the New York Board of Trade and accepted by the largest primary naval stores market of the world, Savannah. Examination of a number of the standard-type samples for turpentine has shown that different sets of these type samples do not agree closely in color. It is highly important that the standard-type samples should always remain the same from year to year, or at least that type samples can be replaced yearly with the full assurance that the color is the same as that previously used; therefore efforts are being made to get the primary naval stores markets to adopt specified colors which can always be duplicated by this bureau and which can be checked from time to time and certified to by the department, much as the cotton standards are now certified to by the department.

The work on production of wood turpentine, its refining, its value as a paint and varnish thinner, and its effect upon the workmen using it in paints has been continued in the laboratory, and the information thus obtained will be used in more extended experiments

during the coming year.

The testing of deliveries of papers, textiles, leather, turpentine, rosin, and other materials for the several

Federal departments is being continued as heretofore and requires much of the time of the laboratory force. Miscellaneous samples, including fertilizers, phosphate, wastes, and other industrial materials have been examined at the request of the departments and of other bureaus of this department, and the laboratory is cooperating in the study of methods for the examination of leather and tanning materials. The work on the determination of iron and aluminum in phosphate has practically reached a successful conclusion. Various Government departments are adopting the specifications for paper, leather, etc., which are recommended by the laboratory, and other laboratories of the Government are following the lead of this department and have prepared to do testing which for many years was conducted only by this bureau. It is hoped that in the future the various Federal departments and other agencies will make even larger use of the experience and facilities of the laboratory.

The number of samples examined during the past year, including those examined in the laboratory at

Dayton, Ohio, are as follows:

Paper and papermaking materials:	
Washington laboratory	2,915
Dayton, Ohio, laboratory	3,165
Textiles	194
Turpentines and rosins	209
Leather and tanning materials	
Miscellaneous	
Total	6 719

How are Trees Splintered by Lightning?

In a note to the editor of the Scientific American, T. Kingsmill Abbott, of Muralla, Wingen, New South Wales, comments on a letter published in a previous number in which occurs the sentence: "The splintering of the enormous pine tree could well be accounted for by the instantaneous development of steam from the sap in the wood in connection with the air in the tissues caused by the sudden heating by the current."

Mr. Abbott says he has actually witnessed the striking by lightning of an "iron bark" tree which had been ring-barked and dead for thirty years. This particular wood, as is well known, is one of the soundest and hardest in the world when seasoned for so long. The effect of the lightning on this tree was to blast it into hundreds of pieces, the largest weighing no more than ten pounds, from the topmost branch to within eight feet of the ground. It was a tree 70 or 80 feet in height, and the pieces were thrown in every direction, some as far as 160 yards from the base of the tree.

160 yards from the base of the tree.

A dead and seasoned "iron-bark" has no sap, and as there was no rain, it being a dry storm, the theory of sudden development of steam would not account for the

blasting. Continuing he says:

"The amount of heat necessary to expand the air in the tissues of the tree would have to be terrific, and there was not the slightest sign of burning or scorching. On the other hand, I have seen lightning strike a tree and simply ignite it without blasting it into pieces.

"Thus it is reasonable to suppose that Mr. Nichols's statement will not explain my example. I have never heard a satisfactory explanation of the case. Is there

one?"

The ingenious system of handling wood that has been installed at the mills of the Brunet Falls Manufacturing Company, Cornell, Wis., is the invention of V. D. Simons, one of the officers of the company.

How Shall We Use the Canal?

AGAIN we would remind our readers that the completion of the Panama Canal is nearer at hand than most of us have dreamed, and when completed it is pertinent to ask what we are going to do with it.

We have indulged a good deal of talk about the wonderful achievement of American energy and ingenuity in completing a task of such magnitude in a comparatively short time, and have pointed with pride to the fact that the work has been accomplished sooner than promised or expected. Plans are being perfected for a great exposition to celebrate the nuptials of the oceans. All this is very well; but certainly the construction of the canal had back of it a better purpose than the mere gratification of a national pride.

The enterprise was undertaken chiefly to assist the American people in their laudable effort to attain commercial supremacy. It was meant to aid us in the establishment of profitable trade relations with those countries lying to the south of us and even beyond the broad seas, with whom we have heretofore had little dealing. But are we making ready to avail ourselves of the opportunities offered by the opening of the canal.

Other countries with which we must compete in the fields of foreign commerce are building their boats and conducting negotiations preliminary to the establishment of extensive trade relations. Their representatives are in the field preparing the way for speedy conquest. Americans are talking and "viewing with pride," but we have been unable to discover any considerable effort to put ourselves in a state of readiness to enter and occupy the newly opened countries.

Will there after all be much cause for self-congratulation, if in the end we simply have the ditch and other countries have the trade?

In this connection it may be pertinent to inquire whether the American paper manufacturer has very extensively explored the regions shortly to be made accessible, or even seriously studied the trade possibilities.

Paper for Government Printing Office

A NNOUNCEMENT has been made by the Government Printing Office at Washington of the specifications and requirements of that department for paper to be supplied for the year beginning March 1, 1913.

Inasmuch as the circular descriptive of the papers desired is furnished direct to all manufacturers who care to submit bids, we are not using our space to reprint it. Comparatively few of our readers are interested in the details.

It is to be regretted that the Government, in order to economize, is content to print so many of its public documents on a low grade of paper. True it gets the best obtainable for the price; for there has always been a disposition on the part of manufacturers to secure these orders without serious regard to the price. We think it can safely be said that so far as paper is concerned the Government buys at a lower price than any private consumer.

If the Government reports and documents are worth publication and distribution they are worth preserving for future reference. From many sources comes the complaint that modern papers are not durable. Many of them are not, but we cannot hope to procure an imperishable article for a price that quickly vanishes.

The thirty-first annual meeting of the American Forestry Association is announced for Wednesday, January 8, 1913, at the New Willard Hotel, Washington, D. C.

The program calls for a directors' meeting at 10:30 A. M., business meeting at 12 noon, luncheon at 1 P. M. and business meeting and addresses at 3 P. M.

Some very interesting talks are expected from certain authorities who have promised to be present.

Japan's Paper Industry

A FTER cotton-spinning the manufacture of paper is Japan's most important industry. As raw material, the so called paper mulberry bush (Kodzu) Broussonetia papyrifera (mitsumata) serves. While the manufacture of domestic paper is very old the production of "European" paper was first commenced by the Oji paper mill, working with rice-straw, rags and old paper.

After the Saigon uprising in 1877, as a result of the establishment of numerous printing plants the demand for European paper increased enormously. The manufacture of domestic paper, mostly conducted with hand apparatus, is carried on principally by the rural population as a secondary occupation, during the dull season. It gives occupation to about 60,000 families. Experimental stations in the most important districts test and select the best raw materials, also imported fibrous material. Guilds supply the country people with raw material and provide for the sale of the product.

Since the acquisition of the island of Saghalien, it supplies the manufacturers with woodpulp, which is cheaper than the domestic vegetable fibers: in Shiraoi too, on the island of Hokushu, a large woodpulp plant has lately been set up. The manufacture of European paper is conducted chiefly in the large cities, such as Tokio, Osaka and Kobe.

In 1909 there were 27 establishments engaged in the business, with 182 machines and 6,486 employees, turning out 124,000 tons of European paper. During the preceding year the Mitsui Bussan Kaidha, the greatest Japanese business house, has erected at Tomokomai on Hokushu a mill that produces daily 65 tons of newsprint. The product, for the most part, goes to India, Australia and China. Altogether the value of the product of the hand mills is placed at \$8,964,400; of the mills equipped with machines at \$7,497,000. The exports have a value of only \$1,618,400 while the imports amount to \$4,498,200. According to this Japan consumes annually paper to the value of \$19,-373,200. In the imports, Germany takes the lead, followed by Austria and England. The paper imported from the two first named countries consists principally of imitations of Japanese paper. Digitized by GOOGLE

Water Conditions in Wisconsin

SPECIAL TO PAPER

APPLETON, Wis., Dec. 30—In spite of the fact that there has been a deficiency in the rainfall during the last three or four months of the year, water power in Wisconsin is holding up in little less than a remarkable way. On the Fox river, for example, although all the fall manufacturers have been drawing all the water they wanted, the level of lake Winnebago remains well above the crest of the Menasha dam.

Thus far the winter has been unusually mild. Once or twice the mercury has taken a tumble to zero or below, but the cold has lasted only a day or two. On these occasions the mills have experienced considerable trouble with anchor ice, on account of the waterways being unprotected by surface ice. One of these cold snaps came about a week ago, and at the Kimberly level the anchor ice and slush ice came down the river in such quantities that it piled up on the crest of the dam and backed the water up two and a half feet in half an hour. In some cases the wheels of the mills have been so clogged with ice as to be absolutely put out of business for several hours.

While welcome in many other respects a mild winter is un-welcome to the mills so far as ice conditions are concerned, for every time a brief cold spell comes the ice starts running again in the open water ways. The way the water levels in the rivers have been maintained this fall and winter makes it quite certain that water power will be unusually good for the remainder of the

winter.

Papermaking Personals from Wisconsin

[SPECIAL TO PAPER]

APPLETON, Wis., Dec. 30-While the mills are very busy with the routine work of inventories and closing up the year's operations, there is a holiday lassitude about them in other respects, at least so far as events of a news quality are concerned. The least so far as events of a news quality are concerned. The holiday of New Year's day is not observed by the mills ordinarily, and doubtless will not be this year. Announcements have been received in this city from Mr. John Thomas Frederick, of Chicago, of the marriage on Christmas day of his daughter Alice to George Francis Steele. Mr. Steele, as is generally known, is in charge of the new paper mill enterprise of the Brunet Falls Manu-facturing Co., at Cornell, Wisconsin. He has been building a new house at Cornell for his bride, and they will be at home after January 20.

Scenes depicting the Wisconsin paper industry are to be featured in the moving picture shows of the country. A representative of a film-making concern has been in the Fox river valley of late, making pictures of water powers along the river, of employees going to and from their work, and of interiors of some of the mills showing the mahcinery in motion and the various operations of the workmen in the establishments.

Outagamie county, in which the Fox river valley paper industry from Appleton to Kaukauna is located, has voted \$20,000 to build a county tuberculosis sanitorium, and a site has been selected on the bluff overlooking the Fox river, nearly opposite the mills of the Combined Locks Paper Co., about a mile and a half above the city of Kaukauna.

Peter Derio, employed on the work at Brokaw in rebuilding the dam carried out last summer, had his leg crushed last week so that amputation was required.

The Appleton Coated Paper Company recently signified its desire to go under the workmen's compensation act of the state of Wisconsin.

F. J. Sensenbrenner, of Neenah, was recently elected treasurer of the Wisconsin Manufacturers' Association.

Superintendent P. R. Thom of the Kimberly-Clark Co., entertained the base ball club of the village of Kimberly and a few others at a banquet at the Sherman House in Appleton a week ago, as a testimonial of appreciation of their work last season.

Mr. and Mrs. Frank Holbrook, of Glens Falls, N. Y., spent Christmas with Appleton relatives.

Eugene Orbison, of Cornell, Wisconsin, spent Christmas with his parents in Appleton.

The R. A. Cauthorne Paper Company, has been incorporated at Richmond, Va., with a capital stock of \$15,000 to \$20,000.

The directors include R. A. Cauthorne, president, Richmond, Va.; F. M. Yager, vice-president, Roanoke, Va.; Alfred Gray, jr., secretary, Richmond, Va.

Planning a New Pulp Mill

[SPECIAL TO PAPER]

WATERTOWN, Dec. 30-James B. Wise, manufacturer of bath tub and plumbers' supplies is contemplating making a waterpower development, which may result in the establishment of another pulp mill in this city. A few years ago Mr. Wise purchased the old Davidson marble plant and accompanying water rights on Black river at the Eastern outskirts of the city. Since

the purchase, the place and power have been lying idle.
Engineers Staege & Bennett are now preparing plans for the
development. Three sets of plans have been made, one of which
consists in the construction of a new dam and power house and another leaving the old dam in and constructing a canal to the site of the proposed power house. About 1,200 horsepower will be developed and as this is considerably more than Mr. Wise will use in the operation of his shops, he is considering turning the old marble plant into a pulp mill for the utilization of the surplus

BLACK RIVER.

Beater Engineer a Target for Revolver Shots

WATERTOWN, Dec. 30-A young Italian was arrested in this city on Christmas day on the charge of shooting at James Freeman, beater engineer at the mill of the Cylinder Paper Company. When arrested the Italian was intoxicated and had a long 32 calibre seven shooter in his pocket with three chambers empty. Three shots were fired at Mr. Freeman as he was standing by some box cars in the railroad yards, but fortunately none of the bullets struck him, two going over his head and the third passing by his

Mr. Freeman told the police that he had had no trouble with any Italians and had never seen the Italian before, who is accused of having done the shooting. "The first intimation I had," said Mr. Freeman, "was when the Italian yelled, 'me shoot'". "Shoot at what,—these box cars?" replied Mr. Freeman. "Me shoot," repeated the Italian and then he shot. He is the second degree and was held to make the second with second with second with second second degree and was held to make the sec charged with assault in the second degree and was held to await the action of the grand jury, without bail.

BLACK RIVER.

Watertown Firms to Bid on Gov't. Contracts

[SPECIAL TO PAPER]

WATERTOWN, Dec. 30-Knowlton Brothers, of this city, and the the Harmon Paper Company, of Brownville, will in all probability be the only paper manufacturers of this vicinity to submit bids for contracts to furnish paper to the United States Government and it has not yet been decided whether these concerns will enter the field. The Harmon Paper Company is now completing a contract for facing slips for the government this year and Knowlton Brothers were last year unsuccessful in landing a contract. If a contract is put in by the latter company it will be for cover paper. At the offices of these concerns it was said that they had not decided whether they would submit bids or not. The awards are not usually large enough to mean much to the manufacturers and the Government is so particular that in the end little profit is made, it is claimed. For several years Knowlton Brothers were given contracts on certain kinds of paper. BLACK RIVER.

The Explosion at the Laurentide Plant

[SPECIAL TO PAPER]

WATERTOWN, Dec. 30-William Gray of this city, who had a contract to do a large painting job for the Laurentide Paper Company of Grand Mere, P. Q., had just left for this city, when the digester explosion in the sulphite plant, occurred, which cost the lives of five men. Mr. Gray upon his return here received a letter from Quebec stating that the entire plant with the exception of the boiler house, had been wrecked and it would take the company eighteen months to rebuild it. Mr. Gray however expected to return to Grand Mere January 3 and continue his The statement in the letter does not agree with the reports published to the effect that only the sulphite plant was damaged and that it would take but a short time to put it in condition for operation. BLACK RIVER.

Acting on the suggestion of the public service commission the Eastern New York railroad has reduced the rate per ton from 45 to 40 cents on tissue paper from the plant of the Pioneer Paper Company to Ballston, connecting with the D. and H. railroad.

Hamilton (Ohio) Making Bids for Industries

[SPECIAL TO PAPER]

DAYTON, O., Dec. 30—If plans that are being formulated by the committee on industries of the Chamber of Commerce, of Hamilton, Ohio, are successfully carried out, that city will soon have a large plot of ground for new industries, and several concerns that have been contemplating removal to that city, among which are one or two paper manufacturing plants, will be established there in due course of time. The only matter of difference between several of the applicants for sites in Hamilton and the authorities that sites is the several of securing favorable locations. The in that city is the question of securing favorable locations. The new plan that has been adopted, it is expected, will fulfill this long felt want.

These facts were included in a report that was submitted to the Chamber of Commerce of Hamilton recently by Linus P. Clawson, former president of the Black Clawson Company, manufacturing papermaking machinery, and which is one of the largest concerns of its kind in the world. The fact was also cited in Mr. Clawson,s report that the Clime Carbon Paper Manufacturing Company, being the only Japanese carbon papermaking industry in America, had been secured for Hamilton through the instrumentality of the Chamber of Commerce and through negotiations with S. Takao, of New York City, who is the principal

owner.

The purpose of the meeting of the chamber and the report submitted by the committee, of which Mr. Clawson was the chairman, was to devise means, where by the other concerns that are now considering the matter of coming to Hamilton may be prevailed upon to do so. An industrial fund is being raised to carry out fully the plans that have been outlined.

Notes from Northern Wisconsin

SPECIAL TO PAPER

GREEN BAY, Wis., Dec. 30-The work of rebuilding the power plant of the Green Bay Paper & Fibre Company in this city was begun this week. The company is overhauling its battery of boilers without interfering with the operation of the mill. One boiler is being overhauled at a time. The company has installed a new boiler to increase the power in its sulphite mill and the production at the same time.

The mills in Green Bay will not be closed for New Year's day because of the great expense attached to closing during the middle of the week. The mills have stock piled up in warehouses and

are waiting to ship out carloads after January 1.

Business continues to be good and the mill managers, are happy over the outlook for 1918, but feel that higher prices might just as well be secured for their product. They look for a better market shortly.

Damage Case Will be Tried Again

[SPECIAL TO PAPER]

WATERTOWN, Dec. 30-At the January term of supreme court. which will open in this city January 6 with Justice E. C. Emerson on the bench, the case of Fenton Kelly against the Jefferson on the bench, the case of Fenton Kelly against the Jefferson Power Company to recover \$10,000 damages will probably be tried as the case is on the calendar. The action was brought to recover for the death of the plaintiff's son, who met his death in November, 1910, while working about a tank filled with sulphuric acid at the plant of the Jefferson Power Company, now owned by the St. Regis Paper Company. It is alleged by the plaintiff that the defendant was negligent in not having the tank properly supported and that as a result, when his son filled it, it toppled over and he inhaled poisonous gases, which resulted in his death. The defendant claims that Kelly was himself negligent in that he filled the tank too full.

The case was once tried and a verdict rendered in favor of the

defendant. It was then appealed and the judgment affirmed It is now back for a new trial.

BLACK RIVER.

Accidents in Watertown

[SPECIAL TO PAPER]

WATERTOWN, Dec. 30-Charles Deane, a papermaker from Dexter, employed by the International Paper Company at the Ontario mill of the Watertown division, had his arm badly lacerated in the rolls of a winder Christmas Day. He was brought to this city and taken to the City Hospital, where his injuries were attended and it is believed that he will not have to lose the arm.

Claude Maldoon, an employee of the Dexter Sulphite Pulp &

Paper Company, had his left leg badly cut a few days ago, when a cylinder head blew out of a small engine in the room, where he was working and the flying pieces tore the flesh of his leg. His injuries are not considered serious. BLACK RIVER.

News of the Maine Lumber Districts

SPECIAL TO PAPER

RUMFORD, Me., Dec. 30-Frank E. Pressey, of Bangor, who for the past five years has been connected with the Maine Survey Commission and Maine Water Storage Commission in connection with the United States Geological Survey as an assistant engineer, has resigned, and is now in the employ of the Eastern Manufacturing Company. Mr. Pressey is secretary of the Maine Society of Civil Engineers and is well known in Maine. To take his place, George C. Danforth has been selected. Mr. Danforth has been acting as instrument man with the special survey party at work in St. Croix waters for the State in connection with the St. Croix Paper Company's flowage of Indian Township and Princeton. He has been assigned to a position in the office of the State Water Storage commission.

Hon. Edwin Riley, of Livermore Falls, division superintendent of the Maine mills of the International Paper Company, held a family reunion at his home Chrsitmas Day, all of the children of Mr. and Mrs. Riley being present with the exception of Cap-tain F. E. Riley, who is in San Domingo in the employ of the

government.

The gypsy moth has infested the timberlands of Brunswick, according to A. O. Pike, field agent for the gypsy moth work in Maine, who has just written to the Brunswick board of selectmen that 4,188 big clusters of the gypsy moth had been destroyed in the woodland on the Thomas farm in the eastern part of the town.

Bernard A. Chandler, formerly of New Goucester, has been visiting in that town and Auburn. Mr. Chandler was graduated from the Edward Little high school in Auburn, and later from the University of Maine, and is now in forestry work for the state in

Burlington, Vt.

Felix A. Albert and his brother, both residents of Canada, and both wood men, were drowned last Sunday at Ripogenus Lake. They were en route to the John T. Morrison lumber camp near there, and broke through the ice while skating. The crew at the camp became alarmed when they failed to appear that night, and search Monday morning discovered their sad fate. Both were recovered, and will be sent to their home in Canada Both bodies

Frank Austin of Athens, a practical and ingenious youth, has put his motor cycle into use in a unique way. He is now sawing up his winter wood with it, having set the machine on a frame and fastened a belt pulley to the hub of the rear wheel, attaching this in turn to the saw pulley, and he is able to saw out a good lot of wood each day.

RAYMOND-WILSON

At noon last Wednesday, at the home of Mr. and Mrs. Ernest Oliver of Mechanic Falls, occurred the wedding of Miss Mattie Wilson and Carroll Raymond, both of Mechanic Falls. The Rev. C. E. Brooks of the Methodist church officiated, using the single ring service. The couple were unattended, and immediately after the ceremony a wedding dinner was served, the Rev. and Mrs. Brooks being among the guests. Mr. and Mrs. Raymond are spending their honeymoon in Boston. Mr. Raymond are spending their honeymoon in Boston. has a good position with the Colonial Paper Company of Mechanic Falls.

Among the sons of Maine who came back to the old home to spend Christmas was Robie Evans, formerly of Fryeburg and now of Oregon. Mr. Robie Evans is a forester in the employ of the government. His life is spent in the virgin forests of Oregon, camping where night overtakes him. He has just been employed in running lines on a tract of land 75 miles long by 65 wide, with the small job as he terms it of laving it out in sections. This the small job, as he terms it, of laying it out in sections. virgin timber is now sold as stumpage. so much per thousand, and the cheating of the Government out of millions of dollars in forest lands is a thing of the past, so Mr. Evans states. After the timber is cut, the thousands of acres are seeded down to pine. Mr. tvans went from Fryeburg Academy to Dartmouth Academy, afterward graduating from Yale's School of Forestry.

It is not now expected that the final report of the St. John River Commission will be made until spring at a late date even then. Quite a little data has been obtained at the State House from documents relating to the Telos Canal, and the interpretation of the third article in the Ashburton treaty relating to the

Obstruction of navigation in the St. John River.

Henry Francis Brown, of Minneapolis, Minn., who died recently, went from Maine to Minneapolis in 1860, where for thirty-six years he was one of the largest individual operators in lumber in the Northwest.

News of the sudden death from heart failure, superinduced by an at ack of acute indigestion, of W. C. Thummel, New York as a tack of acute indigestion, of w. C. Intinmet, New Torse Sales Agent of the Racquette River Paper Company, was received as PAPER was being put to press (one day earlier this week on account of the holiday) and we reserve for a later issue fuller details of his illness and life career. He died at his residence, 331 West Eighty-third Street, New York, on Monday evening. December 30.

Peter Clow's Record of Long Service

SPECIAL TO PAPER

WATERTOWN. Dec. 30—Forty-three years of service in the same paper mill is the record, which Peter Clow, of Great Bend, chief beater engineer for the Taggarts Paper Company, holds. When Mr. Clow started work in that mill, he remained for a short time and then went elsewhere for several months, returning again and working continuously for forty-two years. Mr. Clow has been beater engineer for many years and is a trusted employee of the Company. While there are several papermakers in this vicinity, who have worked many years in the same mill, none of them hold a record that equals that of Mr. Clow. Besides his duties in the paper mill, he holds the position of deputy sheriff and truant officer and has made arrests in many criminal cases.

BLACK RIVER.

Pulp Mill to be Run by Natural Gas

Athabaska Landing is determined to have the first pulp mill in Canada west of the Soo. There is enough pulpwood along the river and north of it to supply the whole prairie country. A syndicate is willing to build a mill, if it can get some timber land—for which purpose a delegation lately went to Ottawa. "We are going to run it in a new way, too, by natural has," said one of the delegates, who is quoted in Canadian Finance. "We have one railway running into our town already, the Canadian Northern Railway, and we will have the same line start out towards the Peace River country and Fort McMurray, this summer, so there will be no lack of transportation facilities."

Post's Directory is Out

Post's Paper Mill Directory for 1913 is now on sale by the publisher, L. D. Post, Tribune Building, New York, at the price of \$2. This directory is complete for the United States and Canada, giving a list of all mills in operation. It also contains a list of paper jobbing houses and dealers in papermakers' supplies, rag and paper stock dealers, etc., besides much other detailed information. The arrangement of the matter and size of the volume makes the directory convenient to consult and easy of reference.

Regarding Truck Wheels

For some reason factories prefer to use trucks with metal tires and to pay consequent repair bills on the floors rather than to use a soft tired wheel and avoid such repair expense. Leonard C. Nason, president of the Aberthaw Construction Co., Boston, recently had occasion to state that this comes partly from the bother of keeping soft tired wheels in proper condition and partly because moving loads on soft tired wheels require more power than hard tired wheels. Mr. Nason then went on to say that there are available wheels made with fiber tires, wheels made with sheets of fiber belted together, and wooden wheels made in various ways. A wheel made with hardwood cut into sectors with wood breaking joints, makes an entirely satisfactory wheel for heavy loads, and is particularly good under wet conditions. Trucks equipped with wheels of this sort will save money and repair bills and will operate as easily as a truck with metal wheels. The use of such wheels will show a good investment.

Commercial Cellulose Films

Cellophane, the cellulose-glass film, is a new substance made from woodpulp according to patents owned by the Blanchisserie & Teiutnoie Thaon, at Thaon, les Vosges, France from wood cellulose. Samples, received by Wochenblatt für Papierfabrikation are described as a flexible, pliant film as transparent as glass, that might be characterized as an ideal pergamin paper, being perfectly impermeable to grease and oil, impervious, gasproof, capable of withstanding boiling water, chemically pure, tasteless and odorless and not affected by dust or moisture. It has the advantage over celluloid in being neither explosive nor inflammable. With all these good qualities must be considered its unexcelled transparency, making it as though created for the packing of food and similar purposes.

It is produced by the manufacturers as above, colorless, colored in all shades, smooth and embossed, in rolls of any width, and in sheets of any thickness, from 0.02 to 1 mm. By wiring

several thicknesses together it may be made of any strength.

In consequence of its great tensile strength, flexibility and toughness, cellulose film can be readily worked, it can be stamped, gilded and printed as desired, also split, corrugated and stuck with most kinds of glue. Its field of usefulness is consequently exceedingly wide, above all it is unexcelled as a packing for goods, articles of food and delicacies, which must be packed hermetically, fat proof and with preserved aroma and still be visible.

It is placed on the market in thin sheets, weighing about ½ oz. to the yard, and with one side coated with a suitable adhesive, for application to the surface of papers, maps, playing cards, etc., which are thereby rendered washable, dirt and grease proof, the application being effected by a two roll calender press or simple platen press that can be heated. The coating then formed is not only water proof, but is unaffected by alcohol, benzin, etc. It never hardens or breaks, but remains always flexible and is never sticky. The sale of the article in Germany, AustriaHungary, Switzerland, Holland, Scandinavia, Russia and Finland is in the control of Otto Matthes, Lloyd-Haus, 60–62 Graf Adolf Strasse, Düsseldorf, Germany.

Fire—One Automatic Sprinkler—Fire Out

An evening fire on the eighth floor of a building on West Thirty-Fourth Street, New York resulted in calling the fire department by the central connection of the automatic sprinkler system. The fire was in shelving near a counter, cause unknown.

A careless smoker caused a fire on the fourth floor of the building owned by the Jordan Estate, Boston, Mass. The fire was put out by one automatic sprinkler with practically no damage.

A fire on the fifth floor of a New York building on Grand street was put out by one automatic sprinkler with very slight damage. The owner reports that if the building had not been protected with sprinklers the loss would have been very large.

A Directory of Commercial Organizations

In a Senate resolution introduced by Senator Knute Nelson, of Minnesota, and passed December 12, 1912, the Department of Commerce and Labor is requested to prepare a list of commercial and agricultural organizations of the United States; this list to be submitted to the Senate not later than February 15, 1913,

1,500 copies of it to be printed for distribution.

The task of preparing the list of commercial organizations has been assigned by the department to the Bureau of Foreign and Domestic Commerce. Very fortunately it happens that for nearly two years past that bureau has been collecting for its own use in its work of promoting commerce information in detail in regard to the commercial organizations of the United States—their functions, dues, income, number of members, districts served, standing committees, and similar facts. By the passage of this Senate resolution there is presented to the bureau an admirable opportunity to place this information at the service of the commercial public. The value of this detailed information in regard to each organization will at once be apparent to any business man. The facts with respect to committees, bureaus, and similar matters will be given concisely by suitable symbols. "CA", for example, may indicate the maintenance of a traffic bureau in an organization; "CB" may be a foreign trade bureau, and in the same way all the activities of a chamber of commerce or other association may be shown in a line or two on a page of this directory. The officers of the bureau feel that an official directory of commercial organizations should be issued annually, as such a record would serve many useful purposes. It would be in constant demand by business men. The development of the service and importance of trade associations during the past decade has been very great, and in hundreds of communities the local chamber of commerce or merchants association is the center of trade progress and trade information.

Information in detail about such organizations for the entire country is now nowhere available to the public in satisfactory form. Some years since the Interstate Commerce Commission issued a list of commercial and agricultural organizations, but as many changes have since occurred that list is now far from com-

The Bureau of Foreign and Domestic Commerce has now in it files full information in regard to over 2,000 commercial organizations. Circulars will be sent at once to postmasters all over the country in order to obtain such facts as it may be possible to secure before February 15 about as many commercial associations as may be reached.

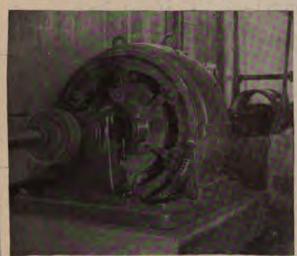
Any chamber of comWerce, board of trade, manufacturers association, commercial club, or similar body, which has not yet filed a record of its existence and activities with the bureau should write at once to that office and secure a ferm with which to return these facts. For a live organization to be omitted from the list which is about to be published would be a misfortune. Every effort will be made by the bureau to secure as complete a list as

possible within the time given for its preparation.

There is now pending in the House of Representatives a bill (H. R. No. 25880) authorizing the preparation of a directory of commercial organizations annually. If this bill passes there will be maintained in the bureau a regular service for the collation of this information. No doubt is entertained as to the value of such a permanent service in the Bureau of Foreign and Domestic

Commerce, of the Department of Commerce and Labor.

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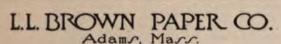
THE speed of the paper machine is under the complete control of the operator. He can start and stop the machine, and obtain any desired speed, by merely pressing control buttons. The speed will remain constant until intentionally changed.

The highest possible speed for each kind of stock can therefore be obtained and delays in handling the machine are reduced to a minimum, thus making maximum production possible. Since the speed, once fixed, remains rigidly uniform, the quality of the stock does not vary.
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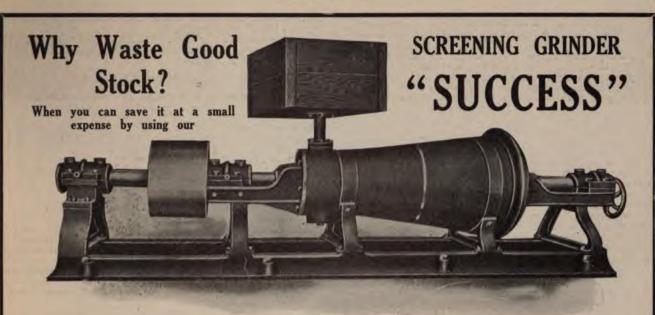
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It will successfully reclaim and grind sulphite and ground wood screenings into a marketable pulp, which can be sold at a profit

HIS MACHINE is thoroughly practical and durable from all points of view and fully guaranteed to do the work claimed for it. The machine will run for years without repairs of any kind, barring accidents. It is easily operated and now running successfully in a large number of the leading mills, making from eight to ten tons of refined sulphite screenings as well as ground wood. It requires no expert and can be handled with the cheapest kind of labor. What we claim for this machine is:

First, a saving of 50 per cent in power over any machine now in use on this grade of material. Second, 100 per cent more capacity than any machine on this grade of material. Third, it requires less floor space and no special foundation, as the machine is mounted on any cast iron base, thoroughly balanced and can be set on any ordinary solid mill floor and will work successfully.

These machines have been thoroughly tested by practical men and have been in successful operation in some of the leading mills for over two years, a best of which we refer to in the following letters. The machine is fully covered by Letters Patent, and built in two sizes. Write for particulars and names any leading mills where it is in use.

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¶ By the use of these Supports the fibres are pulled out better and laid on the wire, leaving the surface as smooth as a polished mirror, when the stock runs over it.

It does away with the slinging of the slice from the motion of the shake, thereby leaving no slice marks in the paper.

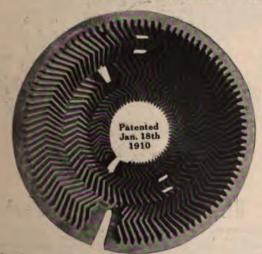
We will put them on your machine on thirty days' trial with no cost to you whatever. If it is not entirely satisfactory and do all we claim for it, it can be returned at our expense.

I Please write us about it.

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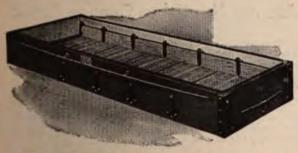
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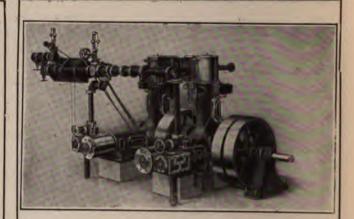
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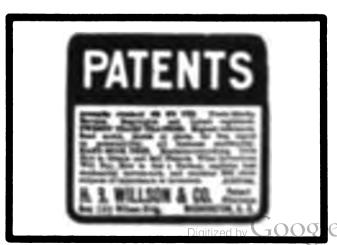
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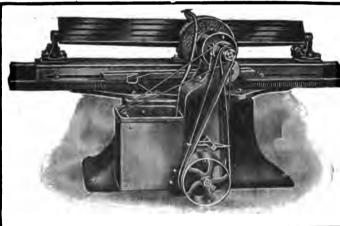
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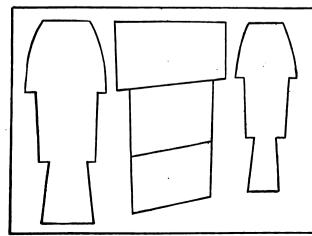
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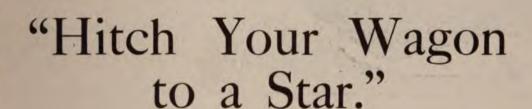
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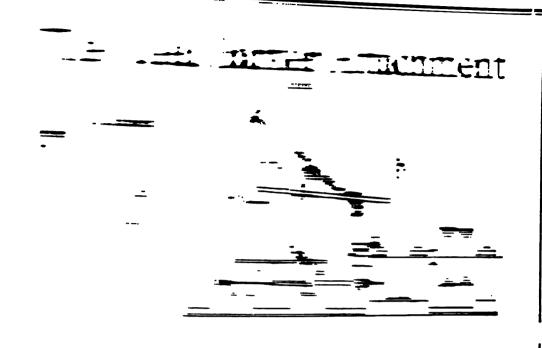
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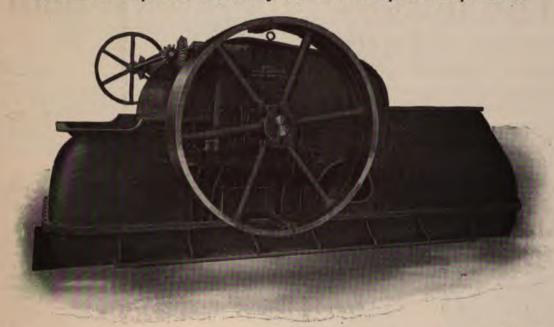
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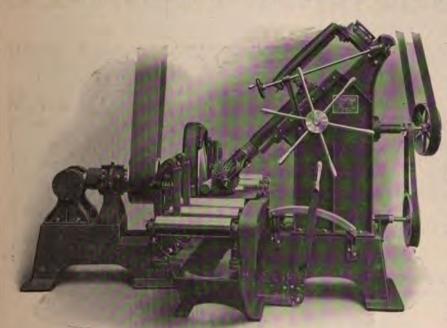
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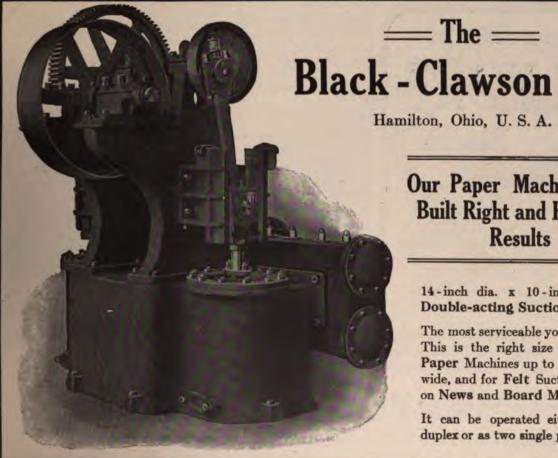
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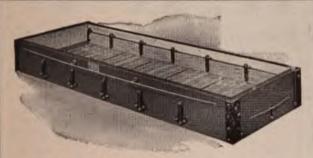
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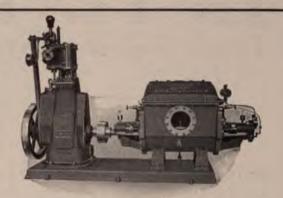
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plan to add the first of the chemicals some little time before the other, in order that it may thoroughly penetrate into the fibers; then when the reaction takes place a proportion of the loading will be very firmly bound up in the fibers and it is obvious that under such conditions retention will be at a maximum and subsequent "dusting" or "fluffing" in the finished article will be at a minimum.

It has to be taken into consideration, however, that pearl hardening is slightly soluble in water, and more soluble in water containing other salts, such as would be formed by the reaction, while if dilute sulphuric acid were used in place of the sulphate, a proportion of hydrochloric acid would be formed, the power of which for dissolving pearl hardening is a matter of common knowledge.

The following experiments were made by the writer for the purpose of determining the effect on the reactions of such a quantity of water as would be usually found in the engine, and the suitability of sulphate of soda or sulphuric acid as the precipitating re-agents.

Assuming that the concentration of the pulp is from 3 to 5 per cent, that 15 per cent of loading is required in the finished paper, and that 50 per cent of that which is added will be retained, then the proportion of loading to the water will only be from 1 to 2 per cent.

Under these conditions, therefore, chloride of calcium and sulphate of soda were brought together and kept agitated. The formation of insoluble matter was very slow, and after one hour the precipitated sulphate of calcium (pearl hardening) was collected, drained, washed with alcohol (not water) in order to prevent the introduction of error due to a little of the sulphate dissolving in the washing waters, and dried. On weighing the product, it was found that only about 35 per cent of the theoretical yield was obtained. In a second experiment where dilute sulphuric acid was used, in place of the sulphate of soda, at the end of one hour no precipitation whatever had taken place.

Two other experiments were made, using the chloride of barium in the place of the chloride of calcium in order to test the formation of blanc fixe under these conditions. In each case, an immediate precipitation was observed, and after one hour had elapsed, the mineral was collected, washed, dried and weighed. It was found that in each of these experiments practically the theoretical yield was obtained. It therefore appears that pearl hardening cannot be economically prepared by interaction of chemicals in the engine, but that blane fixe may be thus prepared. Since the yield from the sulphate of soda was as good as that obtained from the sulphuric acid, it would be advisable to use the former (or bisulphate of soda) so that no free hydrochloric acid should be formed, which might slowly attack the machine wire.

If the paper is to be engine-sized and alum (aluminum sulphate) is to be subsequently added for the purpose of precipitating the rosin of the size, advantage might be taken of the fact that this sulphate could be used, or further, that one of the products of the reaction which takes place between sulphate of aluminum and rosin size is sulphate of soda, which could of course be utilized for the preparation of the blanc fixe, but as this would necesitate the addition and precipitation of the size before loading, it is not to be recommended.

There is no occasion for alarm on account of the unprecedented disclosure of graft and corruption in business and official life. The cruption may disfigure and cause no little discomfort; but after all it is a good indication. It is the poison which fails to come to the surface that proves fatal.

Causes of the Discoloration of Paper

In an abstract of a paper contributed by V. Schoeller to the Wochenblatt für Papierfabrikation, the author's conclusions are thus stated in the Journal of the Society of Chemical Industry for December 16, 1912:

Papers turn yellow under the influence of long storage, air, light and heat. Comparative tests for this tendency are obtained by storing for at least a year, exposing to the action of air and light for about a week, or, most rapidly, by heating in a steam oven at 95° C. for 3, 5 or 30 hours, according to the stability of the paper.

Excluding the presence of mechanical woodpulp, two main causes of yellowing are recognized: sizing with rosin size and modification of the cellulose, e.g., by the action of bleach liquor. The discoloring effect of rosin size may be two-fold; in the first place, the rosin itself, as an unsaturated body, darkens on exposure in the finely divided state as it occurs in the paper: secondly, when any considerable proportion of the rosin is in combination with iron, the resinate so formed causes a gradual darkening of the paper. Klemm has considered this latter agency as the main factor in the discoloration of papers, but the author shows that its influence is secondary to the darkening produced by the alteration of the rosin itself, and that it only becomes appreciable when the proportion of iron in the form of resinate exceeds 0.04 per cent of the total rosin present. This proportion is twice as large as the outside limit occurring in practice with papers sized with commercial aluminum sulphate.

Experiments in connection with the alteration of the rosin, when heated in presence of air, showed that the darkening so produced is not a direct function of oxidation as measured by the decrease in iodine absorption value. Purified resin acids, extracted by aqueous alcohol, show a greater tendency to darken in color than the original rosin, yet the resin acids possess a lower iodine value. Oxidation does occur during the heating, but it affects mainly some constituent which is not concerned in the darkening. Thus the iodine value of a sample of rosin is no indication of its tendency to discoloration.

The author found, however, that rosin can be stabilised by the action of chlorine. For this purpose, 5 kilos of rosin are dissolved with 1,800 Gm. of sodium hydroxide, the solution is diluted to contain 200 Gm. per litre and precipitated with excess of hydrochloric acid. The finely divided precipitate of resin acids is filtered off and introduced wet into a solution of bleaching powder of 10° Bé. (sp. gr. 1.075) in the proportion of 1 kilo of rosin per 10 litres of bleach liquor. The rosin contains sufficient acid to liberate the chlorine, and the mixture is allowed to stand for 5 to 8 days. The treated rosin contains 16.9 per cent of chlorine, and its iodine absorption value has fallen to 33; it readily forms a soap with sodium carbonate and, provided it be employed in conjunction with a good commercial grade of aluminum sulphate, it yields a sized paper which is practically stable in color.

With regard to the condition of the cellulose, papers made from old, worn rags are more likely to turn yellow than those made from sound or new rags; the strength of the bleaching liquor is of less account than the time during which the bleach is allowed to act on the half-stuff. The fiber should therefore be bleached with a moderately strong liquor, the chlorine neutralized and the soluble residues washed out before the half-stuff is stored. Discoloration may be due to the fading of tinting dyestuffs employed to increase the brilliancy of white papers.

A Paper Mill Hydroelectric Power Plant





Fig. 2—TWO 800 KW. WATER WHEEL DRIVEN ALTERNATORS AT DOLBY RIPS POWER HOUSE ON PENOBSCOT RIVER

air blast transformers of 1,000 kilowatts capacity each of which steps the voltage down from 6,600 to 575, all the induction motors used in the mill being designed for operation at 550 volts. The air blast is supplied to the transformer pit by two 4 horsepower motor-driven centrifugal blowers located at either end of the air pit. Only one of these blowers is normally operated, the other being held as a reserve. The incoming line is protected by a spark gap lighting arrester equipment and an eleven panel switchboard is located on the lower flow.

In this mill the group drive system is largely used and each motor has its controller or controlling panel located near it. In the wood room a 5 horsepower motor drives a knife grinder and emery wheel saw sharpener, while a 125 horsepower motor, belt-connected to a countershaft running under the wood room drives the remaining machinery, which consists of three saws, eight barkers, one splitter and three log carriers.

Six pairs of grinders are employed, all water-wheel-driven, three of them being normally held in reserve. A hydraulic press is used for forcing on and off the grinder couplings, and is belt-driven by a 6 horsepower motor. An auxiliary water pump in the grinding room, used for the filter water system, is driven by a 60 horsepower motor. This is a centrifugal pump and the motor is belt-connected to it, as shown in the accompanying illustration.

A 25 horsepower motor is installed in the grinder room for pumping the stock to the screens, while a 300 horsepower motor is located in the screen room. There are seven save-all machines driven in a group by a

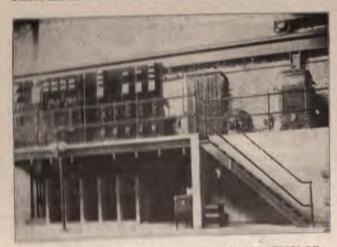


FIG. 8—SWITCHBOARD IN GENERATING STATION OF GREAT NORTHERN PAPER CO. AT DOLLDY RIPS, MAINE



Fig. 4—SUBSTATION SWITCHBOARD EQUIPMENT AT EAST MILLINOCKET, ME.

60 horsepower motor. A 125 horsepower motor is used to drive three white pumps and twelve deckers, and a single tailing pump is driven by a 30 horsepower motor.

In the screen room the main drive consists of a countershaft, belt driven by a 200 horsepower motor. This shaft is connected to three other shafts, a rope drive system being used, while the three shafts are in turn belt-connected to the screens. A talc mixer is installed in the screen room basement and is operated by a 12 horsepower motor which also drives a rotary pump to the beaters. The beaters stock pump is driven by an 85 horsepower motor.

It may be mentioned that the beater room is entirely motor-driven. Three 200 horsepower motors are located on a platform suspended from the ceiling and each operates two beaters, one Jordan, one centrifugal pump, one plunger stock pump and one agitator. There are three 158 inch paper machines normally operating at 600 feet and these are steam driven by means of three Corliss engines, the stock pumps for these machines being also provided for by six fans, two of these being driven by a 22 horsepower motor and four by two 30 horsepower motors, all belt-connected. In the finishing room basement a 6 horse-power motor operates a rewinder and a head cutter, and a similar motor drives the finishing room elevator. In the core room, a rewinder, core cutter and calendar grinder are group driven by a 22 horsepower motor.

Concluded on page 34



Fig. 5—ENLARGED AND REMODELLED SWITCHBOARD EQUIPMENT OF GREAT NORTHERN PAPER CO.

The Protection of Patented Inventions

he Difficulty of Guarding Chemical Patents Against Infringements—The Oldfield Bill By L. H. BAEKELAND, Fh. D.1



HE MASS of unthinking people, as well as those whose views are predominantly guided by precedent, have little or no conception of the natural rights of intellectual property. It is difficult to teach such people that adequate protection of intellectual property is abundantly more beneficial to the community at large than to the temporary dual possessors of these rights.

t these same people consider as sacred and inviolany other property rights as soon as the latter to chattels or real estate, whether such rights obtained by purchase, by inheritance, by gift, by ege, by labor, or by any other way.

thermore, the laws of all nations are very strict stecting such property rights, but do not concern selves, beyond certain limits, whether the posof the property is morally entitled to it or not. er do our laws concern themselves whether the uses his property for good or for wrong, for the it of the community at large, or for the gratifica-of his own selfish purposes. From the standpoint e law (with very few exceptions, such as for ine, Board of Health or police ordinances, or cases called eminent domain), it matters little whether rivate ownership of some property is a burden to ommunity or whether it is an impediment to the ness or the free development of its citizens.

ther is there any dispute as to the time the ownof such property should last. Except for reons put on ownership by taxes, property rights ractically perpetual, and can only be transferred cepted methods, as for instance, sale, barter, innce, or donation.

some rare instances, there may be expropriation blic purposes (or eminent domain), but even then, suitable compensation is usually made.

this is readily accepted as an axiom, as an underarticle of faith by all laws relating to property. the socialist dares dispute these rights, while even ngle taxer admits them to such a decided extent ne desires to abolish taxes on all property created bor or enterprise, so as to shift the burden of all on on unearned land values.

en, however, it comes to recognize the claims of ship to intellectual property, the result of the creative effort of the citizen, we butt right away st some stubborn conceptions which have petrified he code of our long established laws.

Fom steals Dick's two dollar scarf pin, Dick will little trouble in putting Tom in jail, even if Dick If has obtained his pin by questionable methods. when it comes to protect even for the short period enteen years, the most logical, the most legitimate nal property, intellectual property as embodied in

t rights, with all that it involves, with enterprise ding thereon, based often on the work of a lifethen our law courts are wofully deficient, on nt of the uncertainties, delays and enormous, exs connected with the adjudication of patent rights. is works overwhelmingly in favor of the litigant. the well filled purse, the large corporation.

sident's address before the American Institute of Chemgineers, at the Detroit meeting, December, 1912.

Yet, no country in the world has expressed in a fairer and broader spirit, the rights of intellectual property, than the United States, in Article I, Section 8, of the Constitution: "Congress shall have power to promote the progress of science and the useful arts by securing for limited times to authors and inventors, the exclusive right to their respective writings and discoveries.

This proclamation lifted the right of a patentee at once, far beyond the mere privilege conferred by most other countries, which grant patents not only to the real inventors or originators, but also to those who are first to introduce unpublished inventions into their respective countries. With some legitimate pride, we can say that in this respect at least, American patent law stands head and shoulders above the laws of Germany, France and England.

The principles of the right of intellectual property so clearly defined in our Constitution, were repeated in the preamble of the French Law of January 8, 1791, which declares:

The National Assembly, considering that every new idea, whose manifestation or development may become useful to society, belongs to him who conceived it, and that not to regard an industrial invention as the property of its author would be to attack the essential rights of man; considering at the same time how much the lack of a positive and authentic declaration of this truth may have contributed till now to discourage French in-dustry by occasioning the emigration of numerous distinguished artists and by causing to pass out of the country a great number of new inventions from which the Empire ought to have drawn the first advantages; considering finally that all the principles of justice, of public order, and of national interest imperatively command that it determine for the future the opinion of French citizens with regard to this class of property by a law which concerning the command that it determine for the future the opinion of French citizens with regard to this class of property by a law which concerning the command that it determine for the future the opinion of French citizens with regard to this class of property by a law which consecrates and protects it

The wisdom of these provisions has been proved abundantly by subsequent events. Only a man stubbornly blind to evident facts, will deny that just those countries which have the most liberal laws for patent protection, are also those which have taken the lead in the industrial and scientific development of the world. No man was more imbued with the benefits of the patent system than Abraham Lincoln, when in 1860, in his speech at Springfield, Illinois, he said:

"In the world's history, certain inventions and discoveries occurred of peculiar value, on account of their great efficiency in facilitating all other inventions and discoveries. Of these were the art of writing and of printing, the discovery of America, and the introduction of patent laws. The patent system added the fuel of interest to the fire of genius, in the discovery and production of new and useful things.

Up to about thirty years ago, our patent system covered tolerably well the purpose for which it was intended. It stimulated individual inventions and promoted numerous private enterprises. Since then, with the extraordinary growth of our nation, with the tremendous increase of agglomerations of capital for industrial enterprises, and more specially with the astonishing increase in the ramifications of applied science, our patent system has become totally inadequate to the needs of the country; it suits our new conditions in about the same way as baby clothes fit an overgrown boy.

Our patent system, although based on an excellent fundamental law, has now degenerated into a set of exceedingly complicated technicalities of law practice, OSIC

Gov. Haines Opposes Tax on Forest Lands

[SPECIAL TO PAPER]

Bangor, Me., Jan. 6—Hon. William T. Haines was on Jan. 2 formally inaugurated as Governor of Maine. Mr. Haines in his campaign had the warm support of the friends of the pulp, paper and lumber interests, for it was realized that Mr. Haines is thoroughly informed regarding the needs of these industries, as he has long been an extensive forest operator, both on the Kennebec and the Penobscot, driving many millions of feet of logs down these rivers to the mills below. In his inaugural address, Governor Haines placed great emphasis on the necessity of protecting the forests from fire and of proper cutting, taking the position that PAPER has often emphasized that the denudation of the forests means ultimate shrinkage of the streams and loss of water power. In this connection Governor Haines

said:
"Our lumber and pulp business comprise more than half of our manufacturing. A great many of the towns and cities depend almost wholly upon the forest, and our cotton and woolen mills almost wholly upon the forest, and our cotton and woolen milis also depend upon the water power. So we can see that the first great asset of the state is the forest land. Rivers and streams may have large lakes and ponds behind them which can be dammed and a large amount of water held in reserve to be let out in times of drought, but the real and substantial water storage lies in the forest lands; and as soon as they are cut off so that they furnish no protection or shade from the rays of the sun, then will the real water storage be diminished and the

rivers may become practically useless as sources of water power.

"The problem is to use as evenly as possible every day in the
year the 42 inches of rainfall that we have annually. I insist that the first requisite is the preservation of the forests from destruction by fire, and the next the regulation of the amount of cutting done upon the forest lands. The best methods of modern forestry, looking to the preservation of the forests, is that of cutting only such timber as is merchantable,—spruce and pine, down to trees that are 12 inches, breast high, and not smaller; down to trees that are 12 inches, breast high, and not smaller; and the corporations which own large areas of land and require a large annual product for the supply of their mills, looking to the future as well as the present, cannot afford to cut their timber in any other way.

"If properly handled along these lines, they may expect the natural growth of timber to supply their mills for many years to come. But there are a good many small owners of wild lands in the state for which lands they are often in doht who feel

to come. But there are a good many small owners of wild lands in the state, for which lands they are often in debt, who feel obliged to cut sufficient timber, large or small, to meet their financial requirements; and it is through such ownership as this that the great danger of destruction to our forests may be expected, and the consequent decrease in the value of the water power resulting therefrom."

In this connection Governor Haines advocated a change in the method of taxing wild lands, a subject that long has been the occasion of great controversy in Maine. Coming as it does from the Governor of the state, himself a forestry expert, the suggestion is one that is bound to be given mature deliberation and may lead to legislative action. Speaking in reference to the small owners, Governor Haines said:

"Among the burdens, which such owners have to meet and of which they expect to be relieved from the resources of such forests, is the tax; and after a long and careful study of this subject in connection with the facts as they actually exist, and

subject in connection with the facts as they actually exist, and as I have found them from a more or less personal knowledge of the business of lumbering, and of the forests, I am convinced that the best method of taxation is that which will tend to preserve our forests, and I believe if we could have substituted in the place of the tax we now have, a very small charge upon the forest lands and an income tax upon the product annually taken from it, that this would tend, more than any other thing, to increase the growth and preservation of the poorer forest territory in the state. Now I am saying this as one interested in wild lands, because the tax on the wild land owner would probably be increased over what it is today, but the tax on the small owner, who must get his money out of the timber to meet his expenses, including taxes, would be somewhat lessened. It is probable that a greater revenue would be derived from the state, than is now derived under the present system of wild land taxation. It is, in principle, no different from the tax now

assessed against the gross earnings of railroad companies.
"It is important that this matter be attended to without further delay. I am sure that I know of many pieces of land today which, under the present laws, the owners are planning to denude and make worthless for several generations to come, both as timberlands and as holding ground for water; whereas, if only a nominal tax was assessed against them, they would be

Governor Haines took a position against them, they would be permitted to grow and become valuable forest land again."
Governor Haines took a position against that which is being advocated by some, that the state should purchase these lands and form a forest preserve for the growing of timber, believing that such a course would open the doors of the treasury to great

extravagance. He believed the private owners with the lands being open to all for hunting and suit of which pleasures millions of dollars are the state by sportsmen from without. The Governor praised highly the methods of f

being followed by the state under the forestry which the landowners meet the expense by a recommended the appointment of a forestry boa four men, intimately acquainted with the fore the four great rivers of the state, which board was ort of advisory commission to the forestry contact. state.

For a Railroad Bridge Over the

[SPECIAL TO PAPER]

BANGOR, Me., Jan. 6-An announcement has week that the coming session of the Maine legi-ness an attempt for legislation for a railroad be across the St. John river from Van Buren to St. Canadian side. Petitions have been largely.

Aroostook county, and all people interested in to see the construction of the bridge.

A few years ago the Maine legislature and Con the construction of a highway bridge across the legislation prohibited the use of the bridge by action which from the viewpoint of business is a mistake. It is felt particularly along the Main much benefit would accrue from a railread bail. much benefit would accrue from a railroad brid three railroads immediately adjacent on the the Grand Trunk and the Canadian Pacific and th the latter a new road running through the lumb terminating at Campbellton, where there are la latter road is carrying a large amount of logs wh to St. Leonards, carted by team across the h sawed on this side, and brought to market by Aroostook railroad. These logs come into this duty, there being a tariff only upon manufa The movement for a railroad bridge is being lumber interests, which are anxious to eliminate the across the river and the unnecessary double helps. They are of the opinion that with a railre will be able to get a supply of logs from the Cathe year round.

When the matter was up before it was opposithe railroad interests on this side. The road prested is the Bangor & Aroostook, and the annuade within a few days by Percy R. Todd. vi

made within a few days by Percy R. Todd, vi that road, that the Bangor & Aroostook would itx power to forward the enterprise. The en delegation in the Maine legislature is said to st proposition, and it seems almost certain that th

lation will be obtained.

Conditions Good for Timber H

[SPECIAL TO PAPER]

BANGOR, Me., Jan. 6-The fear of the Maine that the winter would be an open one, exists n snow was so long in coming in any material qu crews in the woods getting out logs for the pulp, ber mills were greatly delayed and loafing on the horses eating their heads off in idleness But the snow came in quantities, amounts that made shortcomings, and that will require more or less the woods roads become practicable. However, t plaint at the quantity of snow. The logs can no the river banks and be in readiness for floatin on in the spring. on in the spring.

The general conditions, with the arrival of excellent. The swamps are frozen over and the frozen. The ponds and rivers are high with water than the state of the it seems certain that the hauling can be complete time, there is nothing to worry the operators

At least two of the big lumber mills of Eastern run during the winter, a new departure for this the winters are rigorous and in which the mills us cold weather closes their mill ponds. Last year Lumber Company, one of the largest of Maine mined that the good lumber market warranted the plant open during the winter. The experime cessful and the company is now operating both shingle mills and announces that it will continue the winter months.

The Jordan Lumber Company, of Old Town, he and now states that it will operate its long lumber during the entire winter.

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Grantophouse France Markins Motor 170 by complete to make dust frame represents M to 166 / 8 ft to contract to the contract reserve

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The Pulp Markets in Sweden and Norway

SPECIAL TO PAPER

MONTREAL, Jan. 6—The following report on conditions in the Norwegian and Swedish markets for woodpulp has been made by the Canadian Trade Commissioner at Christiania to the Minister of Trade and Commerce. Discussing the situation

in Norway, the report says:

The value of mechanical wood pulp has gradually hardened and is today nearer \$9.87 than \$9.67 f. o. b. both for prompt and is today nearer \$9.87 than \$9.67 f. o. b. both for prompt and for delivery over next year, and we understand that a fair proportion of next year's output in Norway has already been disposed of. Cellulose is also steadily advancing; for strong sulphate \$37.87 has been obtained, and makers are holding out for \$40 for strong sulphite, while easy bleaching sulphite is tending toward \$42.67 f. o. b. This would be good news for shareholders in Norwegian cellulose mills after several years of unprofitable trading if the cost of production did not tend to advance quite as rapidly as selling prices. But the enormous advance quite as rapidly as selling prices. But the enormous rise which has taken place in freights has put a full stop to the importation of logs from Russia, and the mills which relied upon this source of supply have been compelled to compete fiercely for Norwegian logs, with the inevitable result of driving prices up against themselves.

Of the Swedish situation it is noted that the pulp market is or the Swedish studion it is noted that the pulp market is very firm for all kinds, as the mills now have very nearly disposed of their entire production for 1913. In England the consumers seem to be well supplied, but from the United States there is a very lively inquiry and from that country it has even been tried to contract for 1914 and 1915. The Swedish quotations are at present per ton net, f. o. b.:

 Mechanical, dry white
 20.00 to 20.90

 Sulphite, prime light, bleached
 40.00 to 41.23

 Sulphite, dry, strong bleached
 37.83 to 38.67

 Sulphate, light bleached, ordinary
 34.67 to 36.67

 Sulphate, strong bleached
 34.67 to 36.67

Canadian Papermakers Seek Free U.S. Entry

MONTREAL, Jan. 6-The export duty on pulpwood cut on Crown lands established by the Government in the Province of Quebec about two years ago has proved a boomerang, the Government by an Order in Council having rescinded the regulation in so far as four of the Provincial paper and pulp companies are concerned.

The companies affected by the order in Council are the Laurentide, the Wayagamack, the Belgo-Canadian and Price Brothers, four of the largest producers in the Province and among the largest holders of Crown lands.

The withdrawal of the export duty is understood to have been made at the earnest solicitation of these companies, who found that the one clause of the reciprocity agreement which went into effect—the abolition of duty on paper made from wood not subject to export duty—operated to their disadvantage.

The Order in Council does not open the great Crown lands

areas of Quebec to the privileges of free exportation, and to quote the language of the Quebec *Chronicle* of December 31: "It remains to be seen if the astute Uncle Sam is likely to be flimflammed by any such transparent device.

It is understood that American manufacturers will contend that the action of the Provincial Government is an evasion of the United States Customs regulations and that they are making

preparations to fight the free entry of the paper.

In the meantime, all the United States consuls have been instructed to take extra precautions in the matter of consular invoices of paper being shipped to the United States.

A most ornate card of Christmas and New Year greeting is acknowledged from The Rolland Paper Company, Ltd., of Mon-

A Paper Mill Hydroelectric Plant

Concluded from page 18

There is installed a motor driven air compressor in the engine room for the operation of pneumatic hoists in the paper room. This is driven by a 30 horsepower motor, while a 5 horsepower motor is used to operate a hydraulic calendar hoist.

It may be stated that this mill is typical of other mills which have adopted electric drive in that the original equipment has been added to from time to time as the benefits of motor drive became apparent to the operators, and extensions are being made.

SAVE YOUR WASTE

"1913"

INVESTIGATE THE

PNEUMATIC SAVE A

(A NEW DESIGN FOR SMALL MILLS)

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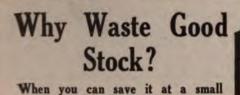


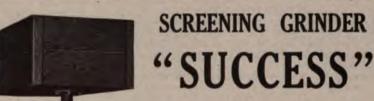
Slitter and Rewinder

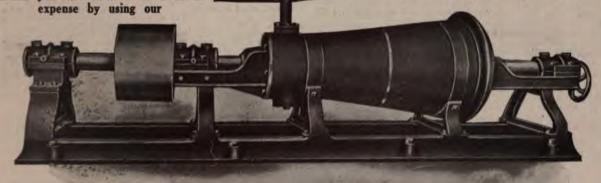
Guarantee: Cutting is even and Rolls do not interweave.

Cameron Machine Company **Brooklyn** New Yo









FLOOR SPACE THIRTEEN FEET BY FIVE FEET

It will successfully reclaim and grind sulphite and ground wood screenings into a marketable pulp, which can be sold at a profit

HIS MACHINE is thoroughly practical and durable from all points of view and fully guaranteed to do the work claimed for it. The machine will run for years without repairs of any kind, barring accidents. It is easily operated and now running successfully in a large number of the leading mills, making from eight to ten tons of refined sulphite screenings as well as ground wood. It requires no expert and can be bandled with the cheapest kind of labor. What we claim for this machine is:

First, a saving of 50 per cent in power over any machine now in use on this grade of material. Second, 100 per cent more capacity than any machine on this grade of material. Third, it requires less floor space and no special foundation, as the machine is mounted on a heavy cast iron base, thoroughly balanced and can be set on any ordinary solid mill floor and will work successfully.

These machines have been thoroughly tested by practical men and have been in successful operation in some of the leading mills for over two years, a number of which we refer to in the following letters. The machine is fully covered by Letters Patent, and built in two sizes. Write for particulars and names of many leading mills where it is in use.

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NEW YORK, January 7, 1913.

MECHANICAL PULP

Seasonable dullness pervades the market and a renewal of inquiries is not looked for until about the middle of this month. Transactions in the interval have been confined chiefly to withdrawals on outstanding contracts. A slight improvement in the movement of supplies is reported. Owing to the brisk demand for newsprint paper, values of ground wood show firmness and prospects for the maintenance of current quotations are promising, especially in view of the fact that stocks of ground wood at milling points are limited.

FOREIGN AND DOMESTIC PULP

The general statistical position of the markets here and abroad remains strong and prices are maintained firmly on invoices for prompt and forward delivery. The volume of new business closed since our last report was small, as is usual during the holiday period. Deliveries on outstanding contracts have been moderate but show a slight gain in the aggregate over those of the preceding week. Cable advices noted unchanged prices and shippers firm refusing to lower quotations, particularly on parcels for forward delivery.

Sulphite, foreign-		
Bleached, ex dock . 2.80		
Unbl'h'd, ex dock .2.05	@	2,35
Sulphite, domestic-	-	0.02
Bleached 2.70 Unbleached 2.15		
Soda, domestio-	69	2.00
Bleached 2.25	0	2.35

Soda, foreign— Unb'd Spruce, ex		
dock1.90	0	2.15
Bleached, ex dock .2.85 Imported Kraft	0	3.25
pulp1.95	@	2.10

BAGGING, ROPE, ETC.

Important developments in the market for bagging, rope, etc., are lacking and orders booked in the interval, involved mostly moderate lines for prompt shipment at about former values. Arrivals show a slight gain, the bulk of which passed into direct consumption. Cables from the principal markets abroad reported a firm tone, under a steady movement of supplies into consumption and moderate stocks. Sellers in most quarters are adhering to quotations, while in some instances slight concessions on sizable invoices have been reported. Spot stocks are moderate.

Gunny, No. 1-		Woo
Domestic 1.50 @	1.60	Fore
Foreign 1.50 @	1.60	Dom
Light Burlap 1.20 @	1.30	New
Mixed Bagging 85 @	.90	tir
Sound Bagging95 @	1,00	Flax
Wool Tares, light 1.20 @	1.30	

Wool Tares, heavy 1.20 @	1 95
Foreign Manila Rope 2.45-@	2.60
Domestic Rope 2.45 @	
New Burlap Cut-	
Flax Waste washed 1.80 @	

IMPORTED RAGS

Holiday dullness dominated the market and business during the interval has been of limited volume. Prices remain firm, though quotably unchanged, based on bullish cables from primary markets abroad noting smaller stocks with prospects for an early advance in the leading varieties of rags. Spot stocks remain small and holders of parcels in various positions generally adhere to current quotations. The movement of supplies on outstanding orders which had been checked to some extent, shows a fair increase since our last report.

German Blue Cot		1	
tons	.1.65	(6)	1,70
Dutch Blues	. 1.80	0	1.85
Light Prints	.1.80	@	2.00
Extra Light Prints	2.00	0	2.25
New Mixed Cuttings	2.00	(4)	2.70
New Light Cuttings	.3.75	@	4.50

Old Linen, White 3.75 @	5.25
Old Linen, Gray 2.75 @	4.59
German Colored Cot-	
tons	
Medium Light Prints1.50 @	
Old Linen Blues2.37-@	
Dark Colored Cottons 1.20 @	1.30

DOMESTIC RAGS

The market presented a holiday appearance, and new orders booked in the interval covered only small lines. Withdrawals on outstanding orders continue slow, owing to unfavorable transportation facilities, due to freight congestion on railroad lines. Prices are firmly maintained under moderate spot stocks and strong advices from primary sources abroad.

	-
New Shirt Cuttings, No. 1	No.
No. 15.75 @ 6.20	Soile
New Shirt Cuttings,	Soile
No. 2	Thir
Fancy Shirt Cuttings 3.90 @ 4.00	Satir
New Blue Cottons3.25 @ 3.35	No.
New Dark Cottons 1.00 @ 1.10	No.
New Light Seconds 3.25 @ 3.50	No.
New Black Cottons 1,25 @ 2,00	Hard

No. 1 Whites 4.00	a	4.25
Soiled Whites, street 1.55		
Soiled Whites, house . 2.25	0	2.35
Thirds and Blues1.75		1.05
No. 1 Satinettes 95		1.00
No. 3 Satinettes85	0	
No. 1 Tallors' Rags 45		
Hard Black Carpets50	(4)	.55

OLD PAPERS

In the face of a seasonable inquiry and the absence of an accumulation of spot stocks, the market for the different grades of old papers remains steady. Holders in most instances are naming previous prices, though, in some quarters slight concessions are named on sizable lots. The movement of supplies on outstanding orders has increased slightly, but deliveries are still hampered by a scarcity of freight cars and freight congestion on most railroad lines.

on most railroad lines.	
No. 1 Hard White	
Shavings2.45 @	2,60
No. 2 Hard White	9 18
Shavings2.10 @ No. 1 Soft White	2.10
Shavings1.75 @ No. 1 Colored	1.80
No. 1 Colored	
Shavings	.85
Shavings	.60
Magazine Flat Stock .85 @	.90
No. 1, Crumpled	.80
Solid Ledger Stock 1.65 @ Ledger Stock 1.40 @	1.85
No. 1 White News 1.25	1.30

Extra New Manila	
Cuttings1.30 @	1.40
New Manila Cuttings1.05	1.10
No. 1 Old Manila 60 @	.70
No. 2 Old Manila 45 @	.50
New Box Board Chips .55 @	.60
Bogus and Mill	
Wrappers	.60
Strictly Overissue	
News	.70
Folded News	.60
No. 1 Mixed News 48 @	.50
No. 1 Mixed Papers4716	.50
Common Papers35 @	

TWINES

During the interval trade has been dull, both in the nature of new orders and withdrawals of supplies on outstanding contracts. Prices however, are well sustained, in sympathy with the firm position of the raw material and small stocks in the hands of manufacturers. In most quarters shippers are several weeks behind in their deliveries on outstanding orders.

@	834	Jute Twines, 436
0	8	Marline Jute, 4 16
	14	Marline Jute, 6
@		Marline Jute, 7
0	8	Marline Jute, 8 &
20		B. C. Hemp, 18
		B C. Hemp, 24
0	12	B. C. Hemp, 36
0	11	B. Hemp, 18
@	1316	B. Hemp, 24
0	13	B. Hemp. 36
(4)	1236	Amer. Hemp, 436
-		1 2 2
	6669 6666	@ 14 @ 13

CHEMICALS

Business in bleaching powder has been less active and only small orders were booked in the interval, involving mostly supplies for immediate delivery at 1.30 cents, while sellers as a rule named from 1.35 cents and upward, according to quantity and terms of sale. Offerings of invoices covering deliveries over Continued on page 38





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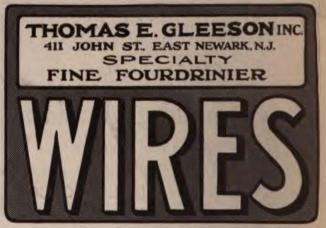
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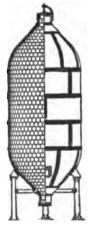
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January 15, 1913

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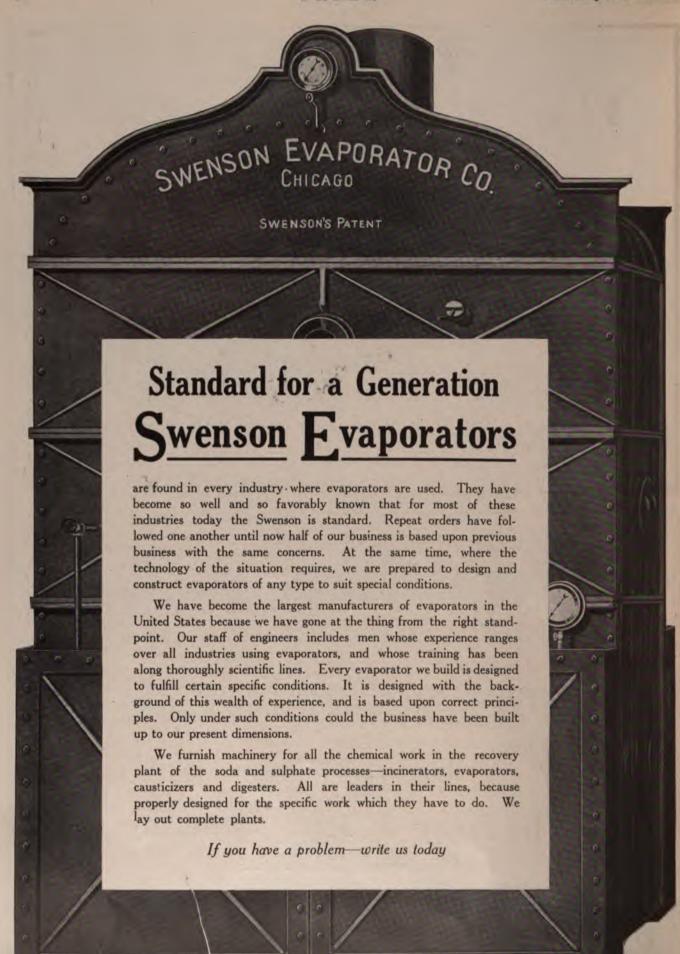
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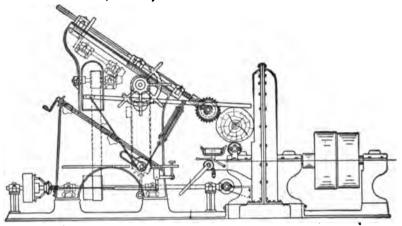
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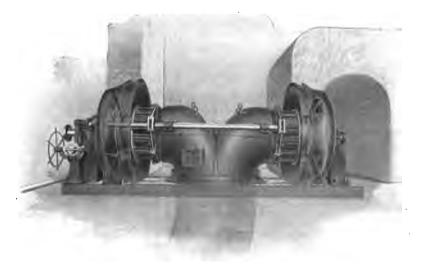


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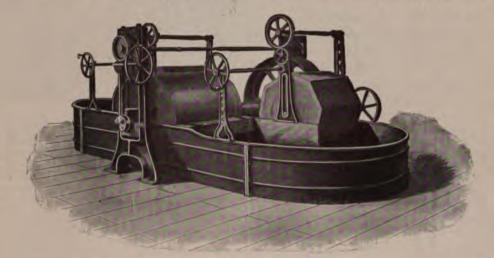
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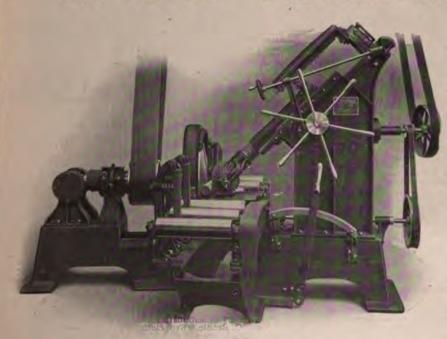
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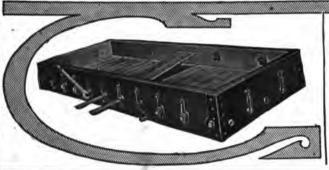
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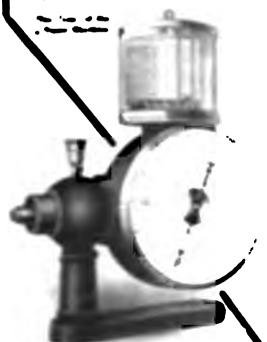
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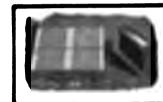
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of 6,000 or 7,000 metres 'breaking length.' This paper has from 9,000 to 10,000. Its elasticity and folding qualities are exceptional. Moreover, it can be made to bear ink and possess parchment qualities without any sizing or other special treatment.

"The reason of this we find to be due to the presence of the cells associated with the fiber, which are of a semi-gelatinous nature, when chemically treated, and dry into the interstices of the paper and produce nat-

ural parchment.

Messrs. Clayton Beadle and Stevens recently presented a paper to the Eighth International Congress of Applied Chemistry on the papermaking qualities of Hedychium coronarium and the following extracts are taken from the paper.



Fig. 1—HEDYCHIUM CORONARIUM IN BRAZIL

A chemical analysis of dried specimens as received was made with the following results:

Whole stem as gathered.

Whole stem after passing through crushing-rollers.

	A.	В.
Moisture	9.7%	11.2%
Ash	4.5	4.8
Cellulose	43.0	48.0
Extracted by chemical treatment	42.8	36 .0
	100.0	100.0
Callulace air dry on air dry alloy		

Cellulose air dry on air dry allowing 44.0%

Raw material in the form of B is conveniently treated by boiling with 5 per cent of soda at a pressure of three to five atmospheres. On washing this material, the yield of boiled product, including all the fibrous constituents of the plant, is 60 per cent. The peculiar characteristics of the pulp are largely due to the presence of the oval cells of the pith, which is included in the above 60 per cent. If these are removed by washing, the yield above 60 per cent of unblesched material on the removed to the presence of the pulp are largely due to the presence of of fiber proper is 50 per cent of unbleached material on the raw weight.

We discovered that the pith cells, which can be retained or not, according to requirements, possess very peculiar qualities. If taken alone, the unbleached cells when dried down go to a horny mass which can only be broken with very great difficulty with a hammer, and are softened only with difficulty when boiled in soda. If retained in the paper, they give it parchment-like properties to an extraordinary degree. They also render the paper ink-bearing without the addition of any sizing material.

On the other hand, the paper made from Hedy-

chium from which the cells are removed is of a soft nature and of medium strength, but that in which the cells are retained, as will be seen, gives higher 'breaking lengths' than any manila paper that we have so far had the opportunity of examining. The oval cells, therefore, 'parchmentize,' strengthen and size the sheet.

The pulp, after boiling in sods and beating, if examined under the microscope in the presence of chloriodide of zinc shows:

(a) Oval cells stained blue.(b) Long wide fibers something like chemical wood, stained blue.

Numerous shorter and solid-looking fibers, stained yellow. (d) Small epidermal cells attached to one another, stained yellow

The length of fibers is given in a table which is not reproduced The means of the results of measurements under the microscope of numerous fibers are as follows:

1. Hedychium fibers, unbleached, not beaten, 2.61 mm.

2. Hedychium bleached, not beaten, 2.56 mm.

3. Hedychium cells washed through 70-mesh wire, measured lengthwise, 0.138 mm.

4. Hedychium cells washed through 70-mesh wire, measured crosswise, 0.083 mm.

5. Best strong thick manila cable paper, 2.835 mm.

6. Ditto, thin, 2.89 mm.

It will be observed that the mean size of the cells, taking the mean of the two directions [mean of the 3 and 4], is 0.11 mm., or less than 1-20 of the length of the fibers which measure 2.58. It can be understood, therefore, that such small particles as the oval cells will pass through a 70-mesh sieve of the washing drum, the holes of which would be about 0.2 mm., but the same sieve would of course retain the fibers proper. It will be observed also that the mean length of the fibers of the longest and strongest manila papers, which is about 2.85 mm., is only slightly in excess of that of the Hedychium fiber, but, as will hereafter be seen the Hedychium, on account of the peculiar nature of the fibers and the cells, is capable of producing a stronger and in many respects more serviceable paper. Moreover, the smallness of the Hedy-chium cells in comparison with the fibers enables the cells to fill the interstices between the fibers. Moreover, these cells being of a flocculent, sticky and glutinous nature, act as a natural sizing material. We mechanically separated and weighed the cells and fibers, with the following results:

The actual amount of fiber proper and cells in *Hedychium* unbleached paper, the cells of which have been entirely retained,

we find to be as follows-

.....82.7

When the pulp is completely bleached so as to produce a white paper, the proportion by weight of cells and fibers in the finished paper is as follows—

We have made several trials of this material on the paper machine. The beaten fiber, especially that containing the pith machine. The beaten inter, especially that containing the pitting cells, when left in an unbleached condition, has an extremely greasy feel, enough to lead one to suppose that it would only part with its water with very great difficulty on the paper machine. Unlike most greasy-feeling pulp, however, the water drains from the machine wire with great rapidity. We have seen the pulp on the wire of the paper machine on five or six occasions. pulp on the wire of the paper machine on five or six occasions. In one case, when making a parchment paper, we observed that the water left the wire quickly after the apron—in fact, in one-quarter of the space taken by a woodpulp paper made on the same machine at the same speed. This argues in favor of the possibility of comparatively fast running on the paper machine, in spite of the greasy feel and the parchment-like qualities.

For the purpose of making a comparison of papers producible from the *H. coronarium* with papers with which it is likely to come into competition, we carried out a number of tests as to

come into competition, we carried out a number of tests as to strength, breaking strain, elongation, bursting strain and grease-

proof qualities.

We draw attention to this fiber as we believe it may become of great industrial importance to the paper trade. Where circumstance to the paper trade of the stances are congenial to its growth, the plant spreads to the exclusion of all other vegetable growth by means of its rhizomes, so that it can be harvested at least once a year, producing a heavy crop. It is an easy pulp to manipulate. It is capable of producing a paper of exceptional strength and can be worked either bleached or unbleached. The fact that the paper in its natural state, without the addition of any materials whatever, can be made to possess greaseproof and self-sizing qualities is a point of commercial importance. Digitized by GOOGLE



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Laboratories of the Forest Products Service

Description of the Electrical and Mechanical Equipment—The Ground Wood Laboratory



HE electrical and mechanical equipment of the Forests Products Laboratories of the United States Department of Agriculture at Madison and Wausau, Wisconsin, is most complete. The main building of the laboratory at Madison is shown in the accompanying illustration (Fig. 1); while a view of the grinding room in the ground wood

laboratory at Wausau, is given in Fig. 2, electric motors being used in this laboratory for driving the various paper and other machines utilized. The chemical digester equipment of the pulp and paper laboratory at Madison is shown in Fig. 3; while the wood preservation equipment in this laboratory is depicted in Fig. 4.

The writer is indebted to the director of the laboratory for the accompanying photographs and data of this laboratory of practical research conducted by the Forest Service, in cooperation with the University of Wisconsin. The scope and purpose of the laboratory have been touched upon in an earlier number of PAPER, but the following are amplified details.

▶ The purpose of the laboratory is to secure authoritative information on the characteristic mechanical and physical properties of commercial woods and products

secured from them.

To study and develop the fundamental principles underlying the preservation treatment of wood, paper, fiber board, etc., as well as the use of wood in the manufacture of alcohol, turpentine, rosin, tar and other chemical products.

p. To develop practical ways and means of using wood which, under present conditions, is being wasted and

to serve as a public bureau of information on the properties and utilization of forest products. To cooperate with consumers of forest products in improving present methods of use; also in formulating specifications and grading rules for commercial woods, materials secured from them (gums, oils, resin, etc.), and materials used in the treatment of wood (creosote, zinc chloride and other preservatives).

It is of interest to note that the laboratory at Madison, Wisconsin, is situated on the northeast corner of Randall Field, the athletic field of the University of Wisconsin is situated on the northwest corner of Randall Field, and the university furnished, without cost to the Forest Service, the building, grounds and the heat, light and power required for the operation of the lab-

oratory.

The Forest Service employs the entire staff, supplies all equipment, and pays all other operating expenses. The equipment is available to the faculty and students of the university for research purposes only, and the laboratory staff presents a course of lectures at the university on the commercial use of the forest resources of the country.

The field of work includes the study of physical characteristics of wood. The physical properties of woods studied are the specific gravity, shrinkage, microscopic structure, and in the case of some species, the specific heat and heat conductivity. Data secured from investigations of this class are chiefly used in correlating the results of other experiments.

The mechanical properties of wood are investigated and the term "mechanical properties" as used in the laboratory is applied to those properties of wood which



Fig. 1—FOREST PRODUCTS LABORATORY, MADISON WIS.



10 May 1 May

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organization and equipment of the laboratory, it is of interest to note that it is divided into the following nine sections, maintenance, engineering, timber tests, wood preservation, wood technology, wood distillation, pulp and paper, chemistry and pathology, These sections are responsible to the director and to two assistant directors.

It is pointed out that the section of maintenance is charged with the general up-keep of the building and the purchase of all supplies and equipment. It also supervises the force maintained for handling computing work of a routine character and the section of stenography. It also has charge of the library file room and the indexing and filing of all laboratory records.

The engineering section has charge of the storage yards, the sawmill, the wood shop, machine shop, and drafting room. It is charged with the care of all materials stored in the yard, the design and repair of apparatus. Its work, however, is conducted in collaboration with the other sections of the laboratory.

There is provided a most complete timber testing laboratory. This section conducts all tests to determine the mechanical properties of natural or treated wood in this laboratory.

Tests to determine the relative mechanical properties of the commercial woods of the United States are being made upon material secured from the forests, and include the study of all the mechanical properties which determine the suitability of wood for different uses. Tests are made to determine the effect of mechanical operative features of pressure wood-preserving plants on the strength of wood, also to determine the mechan-

ical efficiency of joints and fastenings used in wooden structures. The wood preservation section studies the problems confronting the wood-preserving industry, including those dealing with the preservatives themselves and those dealing with the methods of getting the preservatives into the woods.

In order to study the first class of problems, the laboratory is provided with a fungus pit which contains chambers thoroughly inoculated with various wooddestroying fungi. The humidity and temperature of the pit will be so regulated that conditions in it will be most favorable to the growth of fungi. Wood will be treated with different preservatives and placed in the pit. The efficiency of the preservative will be determined by its ability to resist the fungi. In addition to such laboratory experiments, timbers are treated and placed in actual service and are carefully inspected at periodic intervals. The second class of problems are primarily problems of mechanical engineering, dealing with the methods of forcing the required amounts of various preservatives into the different species and pores of wood. The laboratory is well equipped for studying any of the processes used for the preservative treatment of wood. Experiments on the fungicidal properties of coal tar creosote fractions are under way for the purpose of determining the relative efficiency of different fractions of coal tar creosote in preventing decay. Specimens treated with the different fractions are also being placed in the waters of the Gulf of Mexico and the Bay of San Francisco to determine the relative efficiency of the different fractions in protecting yellow pine from marine borers. The investigation of the

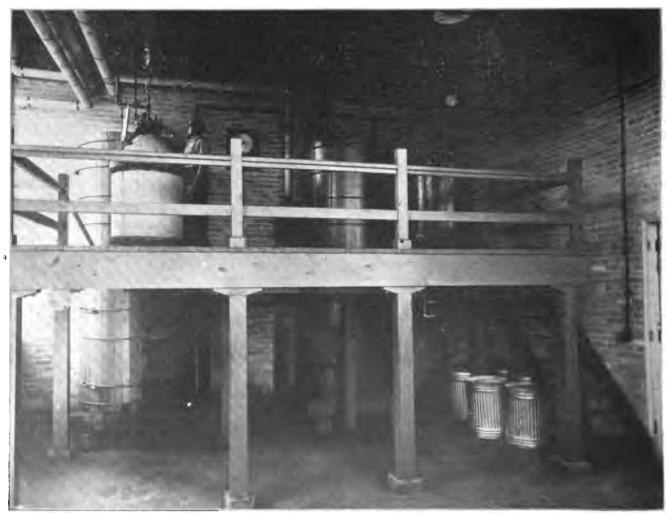


Fig. 3—CHEMICAL DIGESTER EQUIPMENT, PULP AND PAPER LABORATORY, MADISON, WIR. Digitized by



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A Weekly Illustrated Journal of Information on the Manufacture, Uses and Sale of Pulp and Paper

\$5 A YEAR IN ADVANCE

25 CENTS A COPY

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Vol X

JANUARY 15, 1913

No. 5

Tariff for Revenue

N THE course of the hearing which was given the metal schedule last week one of the gentlemen who appeared before the Ways and Means Committee suggested that any material reduction of the tariff as applied to certain articles included in that schedule would mean an inadequate protection.

Thereupon he was interrupted by the chairman, Mr. Underwood, who reminded the witness that it was not the purpose of this pending revision to provide protection, but rather to provide revenue; explaining that the party dominating the Federal Congress after the incoming of the new administration was committed to the policy of a tariff for revenue.

It cannot be denied that the Democratic party did by the declarations of its platform adopt the view mentioned by Mr. Underwood. It is likewise just as true that the party has consistently recognized that a tariff for revenue necessarily provides incidental protection to the extent of the revenue required, and that the tariff for revenue should be levied so as to afford that incidental protection where most needed.

The point, however, is that under the Democratic policy as stated by Mr. Underwood there is not the slightest justification either for the existing paper schedule or for the revision that some paper consumers are anxious to have made.

The provisions of Section 2 of the McCall bill, for instance, not only fail to provide revenue, but wipe out such assistance to the treasury of the Government as should properly come from that source. You cannot raise revenue by putting an imported article on the free list.

The type of reciprocity which we now have with Canada neither reciprocates nor compensates. On the

very face of this is written a manifest reduction of our tariff revenues. There could be no other result under any construction of the law; but the Canadian government has gone further, and is now putting upon the measure a strained construction which is intended to wipe out every vestige of revenue remaining from Canadian paper importations, and this in violation of the plain intent and spirit of the law.

Everybody knows that the purpose of limiting free entry of paper to the Canadian product of unrestricted wood was to induce the removal of such restrictions as prevented the American manufacturer from obtaining raw material from that source. It meant to say to Canada, "You cannot send your paper in free unless you also permit your wood to come in to the American mills."

Now what are they doing? Many of the largest Canadian producers have acquired extensive timber privileges from the Government. The wood thus placed at their disposal is meant to supply their own mills. None of it is for sale, nor indeed will it be. Yet the Government releases that particular wood for the avowed purpose of making it possible to send the product of such mills into the United States free of duty, without in fact making a cord of wood available to the American purchaser.

Such action is nothing more nor less than a hollow pretense; so hollow, indeed, that even the fair-minded Canadian does not undertake to justify it. Quebec Chronicle of December 31, 1912, very pertinently says: "It remains to be seen if the astute Uncle Sam is likely to be flimflammed by any such transparent device."

If he longer permits himself to be thus used, it would no longer be proper to speak of him as "astute."

The patriotic American spirit, it would seem, should dictate the immediate cancellation of the privilege granted to Canada, without compensation; that of sending its paper into our market free of duty.

Moreover, the revision of the tariff along the lines indicated by Chairman Underwood, viz., for the purpose of providing the revenue required to administer the Government, likewise demands an immediate correction of the existing law under which this Canadian product is given free entry.

The Money Trust

The Congressional hunt for the money trust has at least demonstrated that some bankers make more money than the men engaged in making paper, though there are certain individuals who will be slow to believe it.

The Pujo Committee has certainly dug up some snakes, even if it does not succeed in killing any of them. And somehow we feel that little will be done in the latter direction.

Whether the control of the credit and currency by a few people in this country is a good or a bad thing, no one can question seriously that such control exists

SAMUEL H.CADY PRESIDENT PHIL A. HAEVERS

E.H. MANGER

H. B. CLEEPFY 11

GREEN BAY BARKER COMPANY

MANUFACTURERS OF ROBERTS & LIBERT 1. JTARY PULP WOOD BARKER

CABLE ADDRESS BARKER"

GREEN BAY, WIS.,U.S.A.

Dec. 21, 1913.

Paper, Inc., 117 East 24th. St., New York City.

Gentlemen: -

Your letter of the 9th. inst. to hand, and answer has been delayed on account of the writer's absence from the city.

We have decided to take up a half page ad weekly in your paper. You can mail us contract for this, and we will sign same and return to you.

We must say that, from our estimation and general views, we think that the advertising in your paper has certainly been very successful.

He Olevena

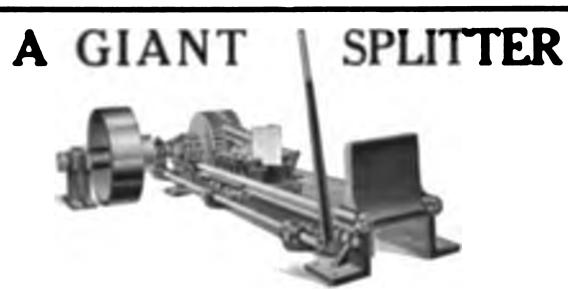
Yours very truly,

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PAPEL.



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Hammermill Paper Company

IN SUN-PROOF MARINE MARIE

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The Heller & Merz Co.

Aniline Colors

Parsons Trading Company

Paper and Pulp



NEW YORK, January 14, 1918.

MECHANICAL PULP

Nothing of special interest has developed in the market for ground wood and prices closed firm without quotable change. Deliveries on outstanding contracts show a slight increase. Official reports note that the imports of mechanical pulp at United States for eleven months ending November, amounted to 33,491,258 pounds, valued at \$2,710,828, showing gains of 156,258,430 pounds and \$1,215,142 in value as compared with the corresponding period in 1911. News roll continues to move freely into channels of consumption, which in turn sustains the firmness of values for ground wood. According to reports, print paper manufacturers of this country carry stocks of about 100,000 tons of newsprint paper, of which the supply at the mill averages 40,000 tons, or nine days' supply for all newspapers of the country.

FOREIGN AND DOMESTIC PULP

Unfavorable weather has to some extent restricted the movement of supplies into consumption and so a scarcity of supplies is reported from some milling points. New business booked during the interval has been moderate and confined principally to invoices for prompt shipments at former prices. Cable advices note firm markets abroad under light offerings and continued strength of the statistical position. Official reports note that the imports of bleached and unbleached pulp at the United States for eleven months ended November, 1912, aggregated 648,718,619 pounds, valued at \$10,820,841, showing a gain of 119,230,586 lbs. and \$1,795,545, as compared with the corresponding period of 1911. Exports of woodpulp at the United States for eleven months ending November, 1912, amounted to 25,007,877 pounds, valued at \$476,516, showing an increase of 7,944,483 lbs. and \$127,456, as compared with the corresponding period of 1911.

Sulphite, foreign— Bleached, ex dock .2.80 @ 3.25 Unbl'h'd, ex dock .2.05 @ 2.35	Soda, foreign— Unb'd Spruce, ax
Sulphite, domestic— Bleached 2.70 2.85 Unbleached 2.15 2.30	dock1.90 @ 2.15 Bleached, ex dock .2.85 @ 3.25 Imported Kraft
Soda, domestic— Bleached	pulp1.95 @ 2.10

BAGGING, ROPE, ETC.

The usual shrinkage in the volume of new business, at this period of the year, has been witnessed since our last report. On the other hand, however, the call for supplies on outstanding orders continues steady though deliveries, are restricted largely by congestion in railroad freight and shortage of cars. Under moderate offerings and firm views of shippers abroad, local holders in most instances show but little inclination to shade current quotations to any extent, as there are prospects of an early renewal of demand.

Gunny, No. 1— Domestic 1.50 @ 1.60	Wool Tares, heavy 1.20 @ 1.25 Foreign Manila Rope 2.45-@ 2.60
Foreign 1.50 @ 1.60	Domestic Rope2.45 @ 2.60
Light Burlap1.20 @ 1.30	New Burlap Cut-
Mixed Bagging 85 @ .90	tings
Sound Bagging 95 @ 1.00	Flax Waste, washed . 1.80 @ 2.85
Wool Tares, light 1.20 @ 1.30	,

IMPORTED RAGS

A slight falling off in the bookings of new business is reported and transactions during the interval have been mostly confined to withdrawals on unexpired contracts. Offerings by cable from the leading primary markets have been light and in most instances former prices are well adhered to, based on a steady demand by consumers abroad and small stocks. According to the views of leading local dealers, indications point to a stronger market and a gradual upward movement of values, based on prospective smaller stacks on both sides of the water.

DOMESTIC RAGS

The statistical position remains strong and the trend of values is in the direction of higher levels, owing to a further curtailment of stocks and prospects of a scarcity of supplies throughout the balance of the winter, when collections are usually small. Deliveries on orders are still hampered by delays owing to continued freight congestion. Moderate offerings and a general absence of price shading tend to hold the market firm.

New Shirt Cuttings, No. 1	No. 1 Whites 4.00 Soiled Whites, street 1.55 Soiled Whites, house, 2.25 Thirds and Blues 1.75 Satinette Garments 1.00 No. 1 Satinettes 95 No. 3 Satinettes 85 No. 1 Tailors' Rags 45	4.20 1.75 2.30 1.85 1.00 1.00 .90
New Light Seconds 3.25 @ 3.50 New Black Cottons 1.25 @ 2.00	No. 1 Tailors' Rags 45 Hard Black Carpets 50	.56 .58

OLD PAPERS

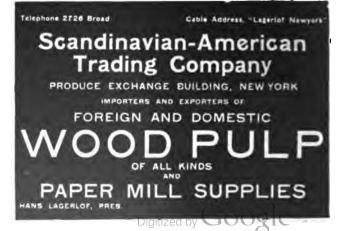
Aside from a steady call for supplies on outstanding contracts, business has been rather quiet during the interval. Holders, as a rule, are confident and offerings involved moderate lines at previous prices. Under small stocks and prospects of a renewal of active demand in the near future, dealers in most quarters are holding stocks in the expectation of a general advance, based on small prospective supplies.

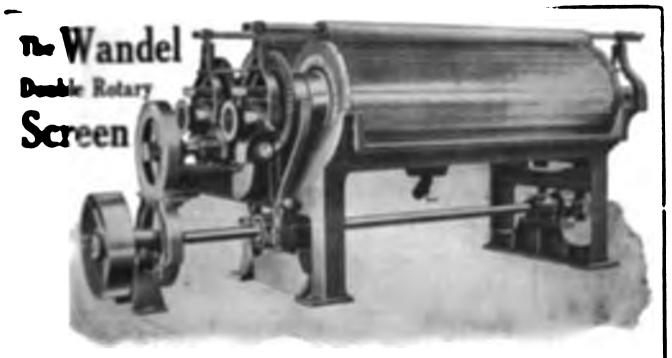
No. 1 Hard White	Extra New Manila
Shavings2.45 @ 2.60	Outtings1.30 @ 1.40
No. 2 Hard White	New Manila Cuttings 1.05 @ 1.10
Shavings2.10 @ 2.15	No. 1 Old Manila 60 6
No. 1 Soft White	No. 2 Old Manila 45 🚳 .50
Shavings1.75 @ 1.80	New Box Board Chips .55 6 .60
No. 1 Colored	Bogus and Mill
Shavings	Wrappers
No. 2 Colored	Strictly Overissue
Shavings	News
Magazine Flat Stock .85 @ .90	Folded News
No. 1. Orumpled	No. 1 Mixed News 48 6 .50
Gold Lodger Stock 188 & 198	No. 1 Mixed Papers47% .50
Solid Ledger Stock 1.65 @ 1.85	
Ledger Stock 1.40 @ 1.45	Common Papers35 🔴 .40
No. 1 White News 1.25 6 1.30	

TWINES

A quiet tone has prevailed in the market for twines and transactions in the interval have been principally in the nature of withdrawals on existing standing orders. Prices have been sustained in sympathy with firm markets for the raw material, and small stocks held by manufacturers.

Sisal Hay 9 @ 8½ Sisal Lath Yarn7½ @ 8	Jute Twines, 4 14 & 6 9 14 @ 10 Marline Jute, 4 14 9 14 @ 10 Marline Jute, 6 9 14 @ 10
Manila Rope13 @ 14	Marline Jute, 6 . 914 6 10 Marline Jute, 7 . 9 914
Jute Rope 71/2 6 8	Marline Jute, 8 & 9 . 814 6 9
Jute Wrappings, 2 to 6 ply—	B. C. Hemp, 18 17 2 18 18 18 18 18 18 18 18 18 18
No. 1	B. C. Hemp, 36 1614 6 1714 B. Hemp, 18 1814 6 1914
No. 2 10	R. Hemp, 24 18 19 B. Hemp, 36 17 16 18 18 18 14 Amer. Hemp, 4 14 & 6 13 4 14
3400 1 William, 5011/3 4 12/3	Continued on page 38





WANDEL SCREEN MFG. CO. WALPOLE MASS.

POURDRINIER PAPER MACHINE



The Sandy Hill Iron and Brass Works BUDGON FALLS, N. Y.

The Markets

Continued from page 36

The market for papermaking chemicals is firm under a steady movement of supplies into channels of consumption. The recent The recent firmer trend of spot prices for bleaching powder has been sustained, based on light offerings, and an active inquiry, together with a large movement of supplies into consumption locally as well as in markets abroad. Official reports note that the imports for ten months ending October, 1912, aggregated 61,971,608 pounds, valued at \$496,258, showing a shrinkage of 19,302,022 pounds, valued at \$495,205, snowing a shrinkage of 15,000,000 pounds and \$58,140 as compared with the totals for the corresponding period of 1911. Holders of spot lots are firmer and 1.35 cents was named as the inside figure, while in numerous instances slightly higher values have been named. There coninstances slightly higher values have been named. There continues a steady movement of supplies of caustic soda into consumption but little has been done during the week in the nature of booking new business. The production of domestic soda has been fairly well sold ahead and makers have been adhering to prices, ranging from 1.60 cents and upward f. o. b., plants as to terms of sale. Business in alum has been mostly confined to withdrawals on outstanding orders; prices ruled steady, but the close was quiet with holders quoting 13/4 cents and upward and 21/4 cents and upward for ground and powdered as to terms of Brimstone has been in slow request, but under steady withdrawals on existing contracts, prices closed steady at \$22 and upward per ton as to terms of sale. Official reports note Official reports note that the exports for eleven months ending November, 1912, amounted to 56,492 tons, valued at \$1,049,839, showing an increase of 28,407 tons and \$494,940, compared with the totals for the same period in 1911, respectively. China clay shows decided strength, under a scarcity of spot stocks, caused by delays of deliveries on outstanding orders, owing to shipments having been held back by storms at sea and congestion in rail-road freight traffic locally. Holders are naming inside prices at \$8.50 for domestic and at \$12 to \$18 for imported, as to quantity and quality purchased.

Imports—Rags and Paper Stock

AT NEW YORK

Week Ended January 11, 1913

Atterbury Bros., Str. Hudson, Bordeaux, 285 bs. rags.
Castle, Gottheil & Overton, by same, 239 bs. rags.
Marx Maier, by same, Havre, 16 bs. new cuttings, 154 bs. rags.
Hudson Trading Co., Str. Michigan, Antwerp, 184 bs. bagging.
Castle, Gottheil & Overton, by same, 18 bs. 167 bs. bagging,
78 bs., 443 bs. rags, 192 bs. flax waste.

A. Katzenstein, by same, 401 bs. rags.
A. Katzenstein, Str. Filomachi, Marseilles, 163 bs. rags.
Atterbury Bros, Str. Patricia, Hamburg, 30 bs. bagging.
Castle, Gottheil & Overton, by same, 39 bs. rags.

Marx Maier, by same, 39 bs. new cuttings.
Castle, Gottheil & Overton, Str. Neckar, Bremen, 88 bs. bagging.
Paul Berlowitz & Co., Str. Laurentic, Liverpool, 70 bs. rags.
Castle, Gottheil & Overton, Str. Buffalo, Hull, 233 bs. rags, 57 bs. bagging.

E. Butterworth & Co., by same, 121 bs. scrap bagging, 150 bs.

rags.

P. Garvan, Inc., by same, 95 bs. rags, 38 bs. old scrap bagging.

P. Garvan, Inc., by same, 95 bs. rags, 38 bs. old scrap bagging. Atterbury Bros., by same, 30 bs. bagging.
Felix Salomon & Co., by same, 62 bs. new cuttings, 51 bs. rags, 88 bs. bagging. 25 bs. old rope.
Castle, Gottheil & Overton, Str. Bramley, Hamburg, 37 bs. rags. Atterbury Bros., by same, 26 bs. rags.
Castle, Gottheil & Overton, Str. Celtic, Liverpool, 50 bs. bagging.
Castle, Gottheil & Overton, Str. Georgic, Liverpool, 545 bs. old

Castle, Gottheil & Overton, Str. Georgic, Liverpool, 545 bs. old bagging.

Darmstadt, Scott & Courtney, Str. Minnewaska, London, 79 bs.

cotton rags.

Atterbury Bros., by same, 17 bs. new waste cuttings.

A. Katzenstein, by same, 134 bs. rags.

Castle, Gottheil & Overton, Str. Laurentic, Liverpool, 55 bs.

bagging.

John Hughes, Str. California, Glasgow, 38 bs. old rope.

Felix Salomon & Co., Str. Rochambeau, Havre, 91 bs. rags. Castle, Gottheil & Overton, Str. Bordeaux, Havre, 290 bs. rags. Welch, Holme & Clark, Str. Laurentic, Liverpool, 200 drs., 50 cs. caustic soda.

Woodpulp

Felix Salomon & Co., Str. Buffalo, Hull, 400 bs. sulphite (50 Perkins, Goodwin & Co., by same, 640 bs. dry sulphite (80 tons)

Castle, Gottheil & Overton, Str. Patricia, Hamburg, 125 bs. (25

tons), 200 bs. (40 tons).

Felix Salomon & Co., by same, 2,498 bs. dry sulphite (312 tons).

Ira Beebe & Co., by same, 650 bs. dry sulphite (81 tons).

J. Andersen, by same, 276 bs. (34 tons).

Felix Salomon & Co., Str. Bramley, Hamburg, 1,200 bs. sulphite

(150 tons). Felix Salomon & Co., Str. Hamburg, Hamburg, 2,296 bs. (287 tons).

Felix Salomon & Co., Str. Zealand, Antwerp, 390 bs. (78 tons).

Atterbury Bros., Str. Anglian, London, 176 bs. waste paper. Castle, Gottheil & Overton, Str. Pretoria, Hamburg, 267 bs.

Atterbury Bros., by same, 207 bs. old rags. Hudson Trading Co., Str. Sicilian, Glasgow, 118 bs. old rags. Castle, Gottheil & Overton, Str. Toronto, Hull, 35 bs. waste

paper.
Castle, Gottheil & Overton, Str. Galileo, Hull, 65 bs. bagging.
Castle, Gottheil & Overton, Str. Bostonian, Manchester, 56 bs.,
65 bs. new cuttings, 45 bs. times 90 bs. rags, 67 bs. 99 bs. waste paper

A. Katzenstein, by same, 221 bs. new cuttings. Scandinavian American Trading Co., Str. Batavia, Hamburg. 240 bs. (40 tons) woodpulp.

Castle, Gottheil & Overton, Str. Kendal Castle, Antwerp, 45 bs., 72 bs., 153 bs., 63 bs. rags, 46 bs. bagging.

AT NORFOLK

Marx Maier, Str. Slaterdyk, Rotterdam, 253 bs. bagging, 43 bs. rags.

AT BALTIMORE

Hudson Trading Co., Str. Philadelphian, Antwerp, 354 bs. old

Atterbury Bros., by same, 209 bs. rags. Castle, Gottheil & Overton, Str. Soestdyk, Rotterdam, 90 bs.

bagging.
Parsons Trading Company, Str. Pretoria, Hamburg, woodpulp, 812 bs. (100 tons).

AT NEWPORT NEWS

Felix Salomon & Co., Str. Bromley, Hamburg, 1,325 bs. (191 tons) sulphite pulp.

R. Helwig, by same, 125 tons (25 tons) sulphite pulp.

AT NEW ORLEANS

M. Gottesman & Son, Str. Bethania, Hamburg, 1,600 bs. (250 tons), 520 bs. (125 tons) woodpulp. Castle, Gottheil & Overton, Str. Atlantian, Liverpool, 60 bs. waste paper.

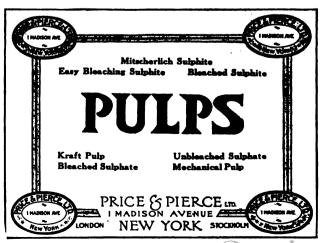
AT PHILADELPHIA

M. Gottesman & Son, Str. Waldersee, Hamburg, 200 bs. (30 tons) woodpulp.
Salomon Bros. & Co., by same, 69 bs. old bagging.
Castle, Gottheil & Overton, by same, 425 bs. (85 tons) woodpulp,

69 bs. old rags.

Atterbury Bros., by same, 1,700 bs. (250 tons) woodpulp.

Concluded on page 32





Acme Shakeless Deckel Frame Supports



147 Paper Machines

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HUBAND & NASH COMPANY, Menasha, Wis.

POSITIVE JORDAN ENGINE LININGS

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LINDSAY FOURDRINIER WIRES PEERLESS

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Eastern Factory

Improved Paper Machinery Co. PULP and PAPER MAKING MACHINERY

Wet Machines-Pulp Thickeners-Pneumatic Save-All SPECIAL Couch, Press and Suction Rolls

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The best results are always obtained from

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No other has a better record in this country. A trial is invited. Satisfaction always guaranteed.

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EASTERN AGENTS

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Report from PAPER, Dec. 18, 1912

"RAGS HAVE SHOT UP LIKE AN ARROW WITHIN THE LAST FEW WEEKS"



DOWD PLATED BARS TEND TOWARDS OFFSETTING SUCH CONDITIONS

They are the best and Strongest Roll Bars that have ever been produced for beating raw rags or uncocked stock. We apply all the skill and knowledge gained during our long experience of over sixty-six years, in the construction of these Bars. They increase the efficiency of the Beaters in beating rags, effecting a saving in time and power. This offsets, in a degree the high ost of material, by lowering cost of production—for as you know, "the paper is made in the beaters."

Our Plated Bars have replaced the All Steel Bars in beating certain classes of stock in a number of mills.

WRITE US ABOUT THE EXPERIENCE OF OTHER MILLS IN BEATING RAGS WITH DOWD PLATED BARS

ESTABLISHED 1847

R. J. DOWD KNIFE WORKS,

Beloit, Wis.

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LABOR BUREAU

Annexa Paper & Pulp Association

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The Surphese of Side Statement and PSES

D Charack M. a. a. Nove York

The Champion Fibre Co.

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Bleached Chestnut Soda Pulp

Bleached Sulphite

Bleached "Extra Strong Fibre"

High Test Jute Container Board

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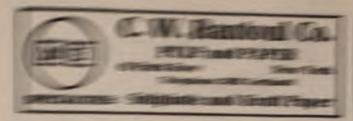
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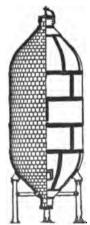
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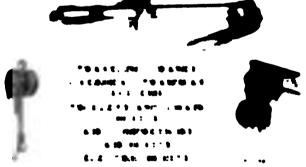
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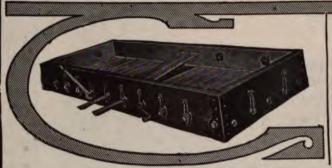
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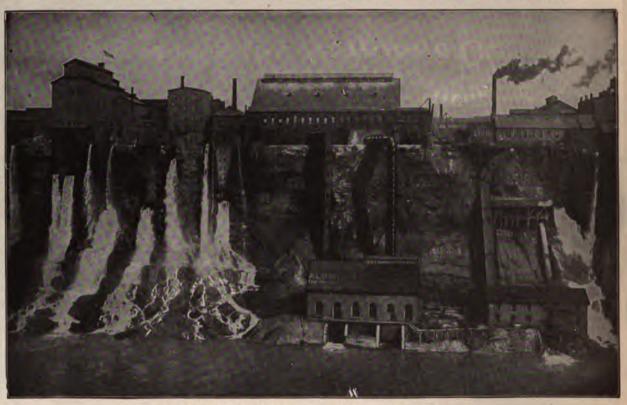
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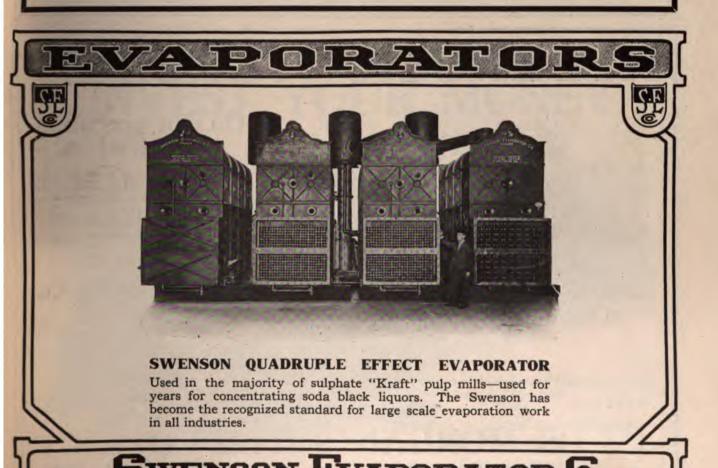
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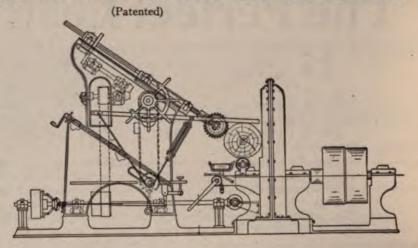


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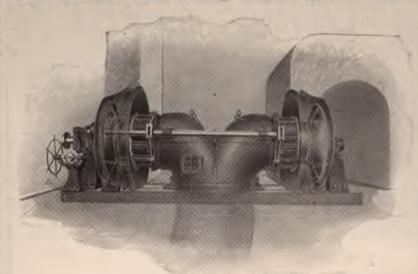


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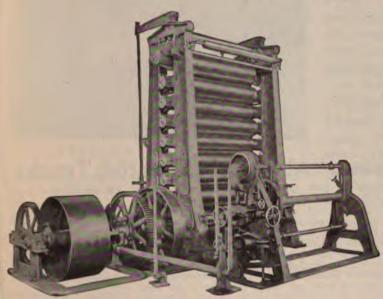
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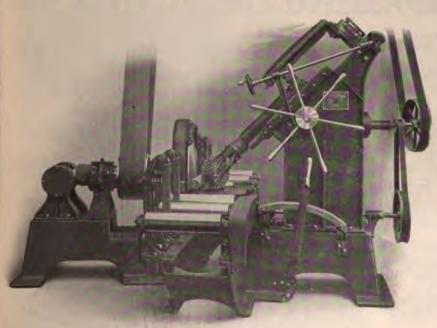
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The Manufacture of Colored Papers



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Attempts to utilize the so called ingrain or diazotised colors have not met with success. Insoluble colors are added to the pulp in the same way as pigments; soluble colors are dissolved in water and added to the beating engine before the size and alum.

The purity and composition of the celluloses in the pulp greatly affect the results obtained; first, as regards affinity for dye, and secondly, as regards the nature

and depth of shade.

Wrede has proposed a method for estimating the affinity of a pulp for a dyestuff. The dye is dissolved in water, and a measured quantity is added to a known weight of pulp, which is then beaten up with water. After standing for a definite period, an aliquot part of the liquor is withdrawn and matched by adding a standard solution of the same dye to water in a comparison cylinder. The quantity of dye fixed can then be calculated.

The method also gives interesting data regarding the rate at which the dye is absorbed and fixed under dif-ferent conditions. The rate is at first rapid, and then becomes slower until equilibrium is reached. Regarding the affinity of colors for loadings, it may be assumed that the universal loading is china clay. This is dyed by basic and substantive dyes, but not by acid dyes. Alum acts as a mordant for all paper dyes more or less, but the use of alum alone, without resin, would not produce a sized paper, and therefore the affinity of resin size precipitate must also be taken into account. When resin soap is precipitated in the pulp by alum, there may be formed resinate of alumina, and resinates of any other bases present, e.g., lime, magnesia, iron, also hydrate of alumina and basic aluminum compounds, besides free resin. Free resin acids are appreciably colored by basic dyes. Resinate of alumina, on the other hand, has an affinity for acid dyes.

It will be obvious that dyeing under such conditions is a combination of processes, namely, dyeing of the fibers themselves, dyeing of loadings, and other substances in and upon the fibers.

In some cases it might be profitable from a dyer's point of view to mordant the pulp with alum before dyeing; but practice has shown that the best results in sizing are got by following the usual order of additions namely, dye, size, alum.

Basic dyes, such as magenta, diamond green, and auramine, are very fugitive to light, but produce rich, deep shades very economically for "news" and cheap printings, and papers whose purpose is ephemeral. They require sizing to insure complete utilization and their backwater is very free from color. They have, however, a tendency to "strike" on some fibers, and produce a "haired" effect.

Direct cotton dyes, such as the benzo, and diamine colors, appear to best advantage in unsized papers, where their brightness of shade is not impaired by the presence of metallic mordants. In sized papers their application is limited by the degree of brightness attainable. They give a clear backwater.

Acid dyes such as orange, water blues and ponceaux, are superior to the basic colors in fastness to light, but owing to their lack of affinity for cellulose require the pulp to be well sized. The backwater is always highly colored, especially in the case of deep shades. In some cases it is possible to cause complete fixation by the use of metallic mordants, but these generally produce a radical alteration in the tone and brilliancy of the shade. Something can occasionally be done by utilizing the property of acid and basic colors to precipitate each other, the pulp being dyed first with a basic, and then with an acid color.

The Use of Malt in Papermaking

IN PREPARING rags for use in papermaking, it is customary to subject them, for the purpose of facilitating the removal of the starch and other finishing and loading substances with which they are treated, to a preliminary cooking with lime, or soda solution. This was effected in olden times by "rotting", the rags being moistened and piled up to ferment, aereal and other ferments of a more or less spontaneous character being depended on to start the process. The result was considerable damage to the material, not only by wasting, but by weakening of the fiber, due to decomposition.

The lime or soda process, now employed, also has its disadvantages. In the first place, the soda, lime, etc., and the steam heat, cost money, and by too long an exposure to the effects of the lye, or by having the latter too strong, the fiber may be damaged; there is also an inevitable loss, owing to the hydrolysis of the

cellulose by the soda.

It is proposed to substitute for the above methods, the "malting" of the rags, very much on the plan pursued in the preparation of barley for brewing purposes and the process is said to be in successful use in Europe,

to a limited extent.

The object of the malting of barley is to render the starch, its chief component, readily soluble in water, so that the malt starch solution can subsequently be saccharified in the mash tub. The transformation of the malt starch into soluble maltodextrin is effected by an enzyme known as "diastase," and is accomplished at a certain temperature. It is proposed to subject the rags that contain starch in any form to the action of the diastase of malt, at a proper temperature, thereby transforming it into dextrin and greatly increasing its solubility.

The rags are first boiled with sufficient water to gelatinize the starch, then enough cold water is added to reduce the temperature of the whole to 60 deg. C. (140 deg. F.), a sufficient quantity of malt infusion, prepared at a much lower temperature, is then added. At the end of about two hours, the hydrolysis of the starch is complete, so that we can proceed to the ordinary steeping by the addition of the alkaline lye, the permeation of which is greatly facilitated by the "malt" treatment.

Not only is the starch, by this process, transformed into soluble dextrin that is readily washed away, but it is said that the dextrin, which has no injurious effect on the cellulose fiber, involves and carries with it a considerable proportion of the impurities in the rags.

considerable proportion of the impurities in the rags. In England, under the name of "Brimal," a product is supplied to the paper mills for use in the preliminary treatment of rags, which is nothing more than a preparation of concentrated diastase, obtained from barley malt, and which owes its efficiency to the effect above described.

Paper from Redwood

The bark of the California redwood tree, which has heretofore been practically a waste product of the many large lumber mills of the State, is likely to be used to a large extent in the manufacture of paper. Heretofore redwood lumber mills have been unable to dispose of the bark to paper manufacturers for the reason that there seems to be no way of removing the red color. Recently, however, says the Scientific American, a process has been discovered by which the color can be removed or changed, so that white paper may be made of the redwood bark.

It - Production of Caristic Alkali and Bleach



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last statement particularly holds for those parts of the bell-jar section furthest removed from the walls, where the current of liquid is exceedingly slow. The larger the bell-jar, the greater proportionately is this disturbance. It also increases rapidly with current density. The consequence is that the units (bell-jars) at Aussig are very small, and can only be worked at a low current density, furnishing weak alkali. Such a plant requires much floor space for its output and the labor charges are high.

In the Billiter cell, this change of direction and the resulting irregularities are avoided, the motion of the

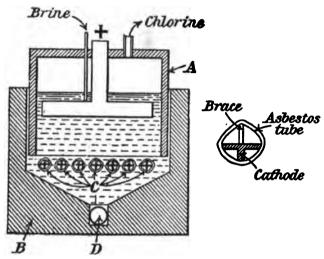


Fig. 1.—SECTION OF BILLITER-LEYKAM CELL

brine being directly opposed to that of the current lines until it has passed the cathodes. The consequence is that high current densities can be used, stronger caustic liquors produced, high current efficiencies obtained, and large units constructed. At the same time, the advantage of the bell-jar cell—the absence of diaphragms is essentially retained. For, though the current must all pass through the hoods which cover the cathodes, this is not true of the electrolyte. Most of it passes directly through the spaces between neighboring cathodes, and is charged with caustic by diffusion from the concentrated alkali which fills the cathode hoods. Not only does this alkali protect the hood material (in practice, woven asbestos) against chemical action of chlorine compounds, but suspended matter present in the brine is not filtered out, as happens in diaphragm cells, and it is not necessary to purify the brine in any way. The asbestos hoods are made of as coarse a structure as is consistent with their function of leading off the hydrogen gas, and affect the voltage to a very slight degree only. Finally, the cell is heated in a similar fashion to the Billiter-Siemens cell, and the voltage thus lowered.

The essential parts of the Billiter-Leykam cell are shown diagrammatically in Figs. 1 and 2. A is the bell-jar inverted in the cement trough B, and provided with anode outlet for chlorine, inlet for brine and heating arrangement (not shown). The cathodes C are arranged below the bottom level of A and consist in practice of T-iron. They are enclosed separately in long woven asbestos tubes which are suitably braced in order to avoid deformation by the evolved hydrogen, and are slanted sufficiently to allow the gas to stream away readily. These cathodes project out into a side compartment of the cell as shown, from which the hydrogen can, if necessary, be collected.

The causticized brine flows off through D.

The Austrian rights to the Billiter bell-jar cell have

been purchased by the paper manufacturers Leykam-Josefsthal A.G. The first plant has been erected in their mill at Gratwein, a village on the Austrian Southern Railway, a few miles from Graz, has been in continued operation since early 1912, and has given every satisfaction. Some 1,700 to 1,800 kilos of active chlorine are produced daily, and the whole plant uses about 400 P. S.²—350 P. S. for the cells and 50 P. S. for auxiliary pumps, fan, etc. Power is purchased from a company at 150 kr. (\$31.25) per P. S. year. After converting into direct current, and reckoning all losses in leads, etc., the cost comes to 180 kr. (\$37.50) per P. S. year.

The plant consists of 561,200-ampere units, 50 of which were working at the time of my visit last July. The cells are 5'5 metres long, 1'1 metres broad (internal measurements), and about 1'3 metres high. The side walls commence to slope inwards about 70 cm. below the top of the cell. They are built of reinforced concrete, the upper part being lined with earthenware

bricks set in cement.

They are provided with three cement lids, each of

which carries eight anodes.

The anodes are of Acheson graphite $(1'0 \times 0'18 \times 0'05)$ metre), each being led through its lead by means of two graphite rods. The lids are cemented on to a shallow shelf cut out of the wall of the cell by means of ordinary putty, which stands the action of chlorine very well and always remains fairly soft. Putty is also used at the points where the anodes pass through the lids, as the weight of the anodes is not borne by the latter, but by the copper leads above. Each anode takes 50 amperes at a current density, assuming lower and side surfaces to be active, of about 1'6-1'7 amp. per sq. dm.

The cathodes are of T-iron and enclosed in woven asbestos tubes. These taper down slightly towards their closed lower ends, and the whole is braced by the insertion of a wedge-shaped strip of asbestos cement. The tubes pass through holes in the dividing wall into the side compartment of the cell as indicated in Fig. 1. Two iron rods attached to each T-iron cathode take

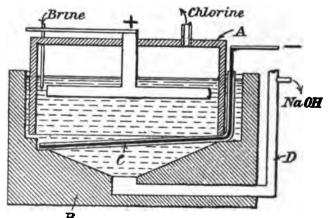


Fig. 2.—SECTION OF BILLITER-LEYKAM CELL

the current to the copper leads above. The hydrogen is allowed to escape. The cathodes are, of course, about 1 metre in length, and the mean breadth of the asbestos tubes is about 5 cm. Between each tube there is a space of 5 to 8 mm. The upward slope of these tubes is about 2 cm. per metre.

The brine (moving from a reservoir under gravity) is led to a distributing box situated above the cells.

²The P. S. (Pferde Stärke or German Power) and P. S. year are of course about 1¹/₂ per cent smaller than the corresponding H. P. and H. P. year units.

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with the platform of the party which will dominate the Federal Congress after March 4 next, by no means involves any sort of reduction of the existing rates on book paper. Both promises of the party, viz., to effect a revision downward and to equalize the burdens of Government, may be kept in all good faith without disturbing our tariff rates except for the purpose of removing the discrimination which now exists against us.

That the paper industry is not on a parity with the other great American manufacturing interests so far as the advantages of a tariff are concerned, was very properly recognized by the Democratic party in the construction of the Wilson bill in 1894. That measure was, as it was intended to be, a very decided downward revision of the tariff; nevertheless, the rate on book paper was so apparently below the level of other articles of importation that the framers of the bill left it untouched in their efforts to effect equalization.

When, however, the Dingley tariff law was substituted for the Wilson bill, radical advances were made in the rates applied to other articles of commerce without applying any increase to the duty on book paper, thus creating again the disparity which had been measurably corrected. What is more, every revision since that date has widened the discrepancy by a gradual lowering of the book paper rate, until there is little left. So far, indeed, as Canada is concerned, entry into the American market is practically free to all paper not exceeding a valuation of 4 cents a pound at point of manufacture, which designation includes about 95 per cent of all the Book Paper manufactured.

Among the many unsound arguments which have in recent years been advanced by those who would remove every restraint and freely admit the product of foreign paper manufacturers to the American market, none perhaps is more fallacious than that which is so frequently

made in the name of conservation.

In the first place, it does not seem to be generally understood that a very small part of the timber cut in the United States is converted into pulp; less indeed than 2 per cent, as fixed by the Government reports. Nor does it seem to be understood that a part of that 2 per cent is made up of such materials, gathered in connection with lumber operations, as would be left to rot on the ground or to be burned up as so much rubbish, but for the market afforded by the book paper mill. Moreover, a very considerable proportion of the wood used in the manufacture of pulp by the chemical process, to be afterward converted into book paper, is of such varieties of timber as are comparatively valueless for any other purpose.

Trees suitable for the manufacture of book paper can be matured in comparatively few years. Whether they shall be planted and protected is in most cases simply a question of whether it will pay to engage in such enterprise. If, therefore, the manufacturer is told that his market is to be taken away from him and turned over to some one else, why should he look to the future, or plan for the future? Will he not most naturally be inclined to cut at once every available stick, dispose of the product, and then go out of the business?

But that is not all. The book paper manufacturer

But that is not all. The book paper manufacturer realizes that the increasing demand for his product must be met; and met with unreasonable increase in the price to the consumer. He is, therefore, constantly seeking new sources of papermaking material.

In the manufacture of the higher grades of paper, such as book and writings, pulp is made by chemical processes. On that account the producer is not limited in his material supply, as is the news print manufacturer, who can grind nothing but coniferous woods. In the manufacture of chemical pulp it is simply a ques-

tion as to whether the natural substances can be disintegrated and the fibers separated at a cost which is not prohibitive. The wide-awake producer is, therefore, constantly invading new fields in his search for pulp-producing materials, and his experiments are by no means without their encouraging results.

In the southern and western states, where the conditions of soil and climate are favorable to rapid and luxuriant vegetable growth, a vast and incalculable tonnage of fibrous material annually goes to waste because there is now no use to which it can be economically put. The cotton stalk, corn stalk, bagasse, and the stalk of the sugar cane have all been tested and found to contain fibers suitable for the manufacture of book paper. The methods by which they and other plants may be economically reduced on a commercial scale will doubtless be worked out in the not far distant future, provided the reason for solving these problems be not removed. If the papermaker is permitted to feel that he is to have a market for his product, he will in turn devise some means to make use of these materials, and thus provide a market for that which is now of comparatively no value to the producer.

Suggestive of the possibilities in the direction mentioned is the following news despatch under date of Grand Forks, North Dakota, December 20, 1912:

The successful utilization of flax straw, millions of tons of which is wasted every fall by North Dakota farmers is being accomplished by a flax-pulp mill at McCanna, N. D. Ordinary flax straw is used and tests show that an average of 33 per cent of the straw is converted into marketable pulp suitable for the manufacture of high-grade paper. The company which owns the mill is planning big increases in equipment, and will establish a chain of mills throughout the state.

Approximately 3,000,000 tons of flax straw is burned every fall in North Dakota. Its utilization, according to Government experts, will furnish an acceptable substitute for woodpulp in the manufacture of finer grades of

paper.

After all, then, it is a matter of national importance that the paper industry be conserved, if not for its own

sake, for the sake of dependent interests.

Some may have the impression that the tariff rate on paper is reduced below the average on all articles of import for the reason that the industry is so prosperous that it does not require the average protection. In answer to that suggestion, it may be stated that, instead of yielding revenues above the average, the capital invested in the manufacture of paper in this country secures returns very much less than that on the average industrial investment.

Figures taken from the Government's statistics of manufactures included in the Thirteenth Census reports show the average net returns, for the year 1909, on thirty-nine of the principal manufactures in this country, other than pulp and paper, amounted to 12.84 per cent of the invested capital, while the net return on the capital invested in the manufacture of pulp and paper was only 7 11 per cent

Compare the last-named figure with certain of the leading industries included in these reports, and note

the differences:

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Clothing, men's, including shirts.		2 0. 29
Clothing, women's. Digitized by	C	33.03

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JANUARY 22, 1913

No. 6

Schedule M

N CONFORMITY with the announcement heretofore made, the Ways and Means Committee of the House of Representatives devoted a part of Friday, January 17, to a hearing of the parties interested in Schedule M of the Payne-Aldrich tariff law.

The large number in attendance necessarily restricted the time allowed those who wished to be heard. Ten minutes was the limit for each witness, except in a few cases where extensions were made by the assignment of time from one to another.

It was utterly impossible, of course, within the brief period available, to enter into any comprehensive discussion of the many important questions involved in a tariff revision. About the only thing that could be done was to file briefs and express the hope that the committee might give them careful consideration. And that perhaps was about the best course of procedure. If the committee is disposed to take such action as the facts in the case indicate as reasonable and necessary, there is sufficient evidence in the several briefs to pre-

- paper industries; while, on the mire to be guided by the n pile up cumulative rerogation.

> say that no fault the members of e at the hearing. peared to be in th, without any

and against the main the same that have been heard at every Congressional inquiry held within recent years. There was, of course, a good deal said concerning the effect of Section 2, which became operative last year.

Everybody understands that the hearings now being conducted are for purposes of justifying a downward revision of the tariff; but that policy by no means implies that every article on the dutiable list should share in a horizontal cut in the rate. Whether there be a necessity for a revision upward or downward, or whether the existing rates be admitted on a fair average basis, the first thing that justice requires is an equalization. All articles being first put upon a proper basis, then it becomes an easy task to advance or reduce the rates all along the line.

It is our contention, and one which we believe is fully sustained by the proofs filed with the Ways and Means Committee, that in comparison with other articles of import paper does not now enjoy anything like the measure of protection to which it is entitled. Papers of various grades range from free trade to a tariff rate of about 35 per cent; the latter on an inconsiderable production of specialties; the average being somewhere around 10 per cent. And this it will be remembered is provided in a tariff law that carries an average rate of more than 40 per cent.

If it could be shown that this low rate on paper still enabled the American manufacturer to obtain a reasonable return upon his investment, there would be no grounds for complaint; but the Government's own figures show conclusively that no such condition prevails.

The percentages of net returns on capital invested in forty of the leading American industries, as compiled from Government reports are set forth in the brief filed in behalf of the book paper producers—which brief is printed in full in this issue of PAPER.

A glance at this table will show that there are only four industries out of the forty listed that do not yield a revenue in excess of the paper industry. The average return is 12.84 per cent, while paper realizes but 7.41 per cent.

Compare the rate of return on the paper industry with that of printing and publishing, for whose benefit a tariff reduction on paper is asked, and it will be seen that the latter is almost three times as much as the former; printing and publishing yielding 20.33 per cent.

Indeed, it is our conviction that the return on capital invested in the paper industry is overestimated, for we do not believe that as a rule a sufficient amount is charged to depreciation.

It is as impossible as it is unprofitable to venture a prediction concerning the probable outcome of the present tariff agitation. Suffice it to say that the Ways and Means Committee now has before it an abundance of testimony which cannot be impeached to justify not only the retention of existing duties but also the restoration of duties that have within recent years been improperly removed.

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The Tariff Hearings on Paper

American Paper & Pulp Association Represented by Mr. Hastings—Brief for the Pulp Makers [SPECIAL TO PAPER]

WASHINGTON, Jan. 20-In appearing before the Ways and Means Committee of the House of Representatives at the tariff hearing, President Arthur C. Hastings, of the American Paper and Pulp Association, laid emphasis on the effect of any adverse tariff legislation. The text of his statement follows:

"We understand from the platform of the dominant party that a revenue tariff is desirable for the conduct of the business

of the United States.
"The paper industry of the United States represents an investment of some \$400,000,000, with an annual business, as shown by the last census of the United States, of some \$300,000,000, comprising an output of nearly 800 establishments, located in comprising an output of nearly 800 establishments, located in thirty-two states, engaged primarily in the manufacture of paper and pulp, employing some 80,000 people. At least 85 per cent of the production of these mills is of a quality of paper that could be imported into this country, of a value of not over 4 cents per pound at the point of shipment, thereby coming in free under the value requirements of Section 2 of the so called

reciprocity act.
"The importation of paper and pulp during the years that we have knowledge of, has constantly increased under the duties that have prevailed, and to such an extent that it has been a detriment to the manufacturers of this country, whom it has menaced most seriously under Section 2 of the reciprocity act. It has not only thrown open our doors to our greatest competitor, Canada, for her surplus production, but we are in great danger from other nations who are claiming the same privilege. This would flood our market to such an extent (through the lower cost of production) that many of our mills would positively be forced out of business, and some would have to curtail their operations to the extent of showing an actual loss in operation.

[Mr. Hastings submitted a statement showing the constantly increasing importations of paper, and manufactures thereof, into the United States since 1880, with the quantities, values and duties, collected under the different tariff acts in force in those

vears.]
"At present, as you are probably aware, a large proportion of the importations of paper and pulp are coming into this country absolutely free from Canada, and pulp from some other nations. While we do not concede that the interpretation of the Treasury by the importations for the eleven months ended November, 1912. Under the Payne-Aldrich bill the duties accruing to the United States, if enforced on all imporattions, would for the year, on this basis, amount to \$1,724,726.61, while, as a matter of fact, we are presenting to the exporters, duties amounting to

\$575,110, due to Section 2 of the reciprocity act.
"We, as an industry, are entitled to the same treatment as any other legitimate manufacturing industry in this country. We believe that when business is normal, and the demand equal to the supply, the tariff has little or no direct influence on price; that in times of depression it is a protection to the home manufacturer, but with the present tariff, under no conditions are the rates so high but that foreign paper and pulp can be, and are,

imported into this country.

"The law of supply and demand governs the price of all our production, probably more exactly than in any other manufactured article. Our goods are bulky, and it is almost impossible tured article. Our goods are bulky, and it is almost impossible to store any quantity of paper, except at a prohibitive cost. the result being, that in time of general business depression, mills, in order to keep their employees at work run their plants even to the extent of manufacturing an article that they know they are losing money on. When it comes to the time when their losses are more than they can actually labor under, their plants have to be shut down, and every pound of paper and pulp imported into this country during such periods, lessens the ability of the American manufacturer to keep his employees engaged.

engaged.
"We point to the fact that the increase in capital invested in the United States has been very little since the agitation which was started by some of the publishers at the time of the so called Mann investigating committee, at which time the manufacturers of this country freely threw open their mills and their books to that committee, who made as full an investigation as they cared to make. That committee recommended that one grade of paper only—news paper—was entitled to a duty of \$2 per ton when made from unrestricted wood. The cost of manufacture, however, did not include the difference in the cost of the wood itself, which is the principal factor in the manufacture of the cheaper grades of paper. Under the Payne-Aldrich bill, which you are familiar with, the rate of duty on the different grades of paper was changed but little, except on news paper, where it was lowered from \$6 a ton to \$3.75, with a penalty attached of \$2 a ton, if the paper was made from wood that had been restricted. The Tariff Board made a most exhaustive inquiry into the cost of paper in the United States and in Canada, and unanimously reported that there was a difference of \$5.35 a ton in the cost between this country and Canada, saying nothing of other

"While our greatest competitor in this grade of paper is Canada, we wish to point to the fact that England, Germany and Sweden are large producers of the lower grades of paper; that the principal export trade which is accessible to us, is almost entirely held by those countries. For instance, the South American trade is largely held by Germany. If they were unable to compete with us, we believe this trade would be held by our

"The present condition of the paper business in this country is that we are attacked in our home market by nearly every country in the world; that we are shut out from their markets by tariffs much higher than the ones existing here at present, the result being that we are the dumping ground for every paper

and pulp manufacturing country.

"The many different grades of paper, I understand, are to be represented here today, and on behalf of their particular grade of paper, the plea of our Association is that this whole matter should be treated in a serious and unprejudiced manner; that the pressure brought to bear upon Congress by one class of interested consumers should not weigh against the facts which are easily ascertained by any department of the Government.

"Taking up the questions in order as you have designated,

would say:

(1) Schedule 'M': we desire that none of the articles under this schedule be changed unless in your deliberations you should find, and we believe correctly, that a larger revenue could be obtained by an increase, in many instances, of the present duties.

(2) The increase in importations by a lowering of the tariff would amount to very little; any increase in duties would result in a large increase in revenue without serious interference with

the quantity imported.

"(3) Our experience is, as stated, that the American market is a dumping ground for the surplus production of other countries; that this surplus would still be brought in here almost

irrespective of duties as long as they are not prohibitive.

"(4) We would recommend the simplifying of the wording under Schedule 'M,' paragraph 406, to read as follows: 'Provided, however, that if any country, or any dependency, province, or other sub-division thereof shall forbid or restrict the importation of mechanically ground woodpulp or wood used for the manufacture of woodpulp, the importation of mechanically ground woodpulp from such countries shall be forbidden or similarly restricted, or if it imposes any export duty, export license fee, or other export charge of any kind whatsoever, either directly or indirectly upon mechanically ground woodpulp or wood used in the manufacture of woodpulp, the amount of such export duty or export charge shall be added as an additional duty to the duties herein imposed upon woodpulp when imposted duty to the duties herein imposed upon woodpulp when imported from such country.' The same wording should also apply to chemical pulp and printing paper, and the value should be set at not above 2½ cents per pound.

"(5) We have no suggestions as to the betterment of adminis-

trative features of the present law.

"Finally, under a consistent policy of judicious consideration of the welfare of this industry, it can, and will, maintain the same rapid growth and improvement in methods. There are abundant waterpowers, an ample supply of suitable wood and other material to increase the production thousands of tons annually, and particularly in the South, where there are many undeveloped waterpowers, large supplies of suitable material for the manufacture of paper and pulp, in addition to thousands of tons of other material which are now going to waste, such as cotton plant and corn stalks, seed delint, flax, and many other fibrous plants.

We point to the fact that in the state of Mississippi there has recently been erected a plant (which expects to be in operation in March) to produce some 10,000 tons a year of high grades of wrapping paper. These papers at present take a duty of 35 per cent ad valorem, which, at the present valuation, is

\$21 a ton. "Texas,

Louisiana, Georgia, North and South Carolina, Virginia and West Virginia, have plants producing large quantities

of paper.
"The mills in this country making these grades of paper have

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SENATOR BROWN'S ARGUMENT

Elon L. Brown, of the United States Paper Mills, Watertown, N. Y., representing the news print mills of the country, discussed the news print paper tariff and the woodpulp tariff. He said that paper mills had increased the wages of their employees, that the price of production had increased, but that by added efficiency the selling price of news print paper had been kept level during the last ten years. The cost of production, he said, had gone up from \$6 to \$9 a ton.
"We are not here," he said, "to urge the fixing of the duty

on news print paper on a protection basis. But we do contend that as a revenue tariff the duty should remain at \$3.75 a ton, as it is at present. This would be an ad valorem duty of about 8 per cent, a really low duty."

8 per cent, a really low duty."

Mr. Brown argued that the woodpulp and paper provision of the Canadian reciprocity act was "oppressive and destructive to the paper industry in the United States," and should be repealed.

W. J. Livingston, of Detroit, asked the retention of the duty on lithographic paper and post cards, declaring that the duty does not affect the retail price of the product. After hearing Richard T. Stevens, president of the Japan Paper Co.; Peter J. Brady, of the Allied Printing Trades; H. A. Craft, representing the paper box makers and Thomas O. Marvin, of the Home Market Club. of Boston, the committee adjourned. Market Club, of Boston, the committee adjourned.

NEAL BROWN SPEAKS FOR THE NEWS PRINT MAKER

Neal Brown, of Wassau, Wis., representing various paper mills, derided the Canadian reciprocity act and said that because of the favored nation treates with European countries which produce pulp and paper, the industry is threatened with free trade in paper. He made reference to the wool schedule and intimated that it would be better if his people had been included under that schedule.

Mr. Brown urged tariff protection. He said the Canadian Mr. Brown urged tariff protection. He said the Canadian restrictive policy acted as a handicap to American manufacturers of paper. The "gigantic press bureaus of magazine and newspaper publishers" are seeking "the undoing of the paper industry," he declared. It is practically impossible, said Mr. Brown, for the Wisconsin and Michigan paper manufacturers to get the products of the free lands of Quebec, as there is an absolute embargo on the exportation of timber cut on the Crown lands of Canada.

of Canada.

John Norris, of New York, chairman of the committee on paper of the American Newspaper Publishers' Association, represented the consumers who pay \$55,000,000 a year for news print paper. The newspapers throughout the country presented testimony, frequently marked by colloquies with Republican members of the committee, in favor of letting down the tariff bars that shut out Canadian paper and the cutting off of all restrictions upon the importation of the cheaper grades of paper and pulp entering into paper manufacture. The American Paper and Pulp Association, through Arthur C. Hastings, of New York and Pulp Association, through Arthur C. Hastings, of New York city, its president, representing, he said, the paper industry with an investment of \$400,000,000, and an annual business of \$300,000,000, voiced opposition to a change in the present tariff.

Robert Graves, of New York, urged an increase from 35 to 40 per cent on foreign wall paper, which comes into competition with the higher grades of domestic wall paper.

John G. Wheelwright, of Boston, rebutted the assertion that paper producers are not equipped with modern machinery.

Argument of the Woodpulp Importers

[SPECIAL TO PAPER]

WASHINGTON, Jan. 20—In a brief submitted by the Association of American Wood Pulp Importers to the Ways and Means Committee of the House of Representatives at the hearing on January 17, the demand was made that European pulps be admitted duty-free on the same basis as Canadian pulps under Section 2 of the Reciprocity Act. The text of the brief follows:

We, the Association of American Wood Pulp Importers,

representing 75 per cent of the importations of chemical woodpulp, appear before you with reference to Schedule M—Pulp, Paper and Books, particularly with reference to Section 406 of the

Tariff Act of August 5, 1909.

Paper manufacturing is one of the leading industries of the United States, there being 763 plants now in operation engaged in this industry. The raw material entering largely into the manufacture of paper is chemical woodpulp, generally known as sulphite, sulphate or kraft pulp. The present duty on this material is ½, c. per lb.; dry weight, if unbleached, and ¼ c. per lb., dry weight, if bleached. There is, however, this exception to be noted: If imported from Canada, when manufactured from wood on the exportation of which there is no export restriction, it is now admitted free of duty in accordance with Section 2 of the Canadian Reciprocity Act which became effective July 26, 1911.

Of the 763 paper mills now in operation in the United States, Of the 763 paper mills now in operation in the United States, 538 paper mills use chemical pulp in their manufacture. There are in this country 94 mills manufacturing chemical pulps, having a maximum capacity of 3,363 tons of unbleached pulp per day and 1,155 tons of bleached pulp a day. Of these mills only 18 are engaged in the sale of pulp; the other 76 pulp mills have paper mills also, which use up their entire production of pulp. Of the 18 mills engaged in the sale of pulp, 12 have paper mills in connection with their pulp mills, and sell only such portions of their product of pulp as is in excess of their own requiretions of their product of pulp as is in excess of their own requirements at their paper mills, so there are really only 6 pulp mills in this country actually engaged in the exclusive manufacture and sale of their product. These 6 mills have a maximum daily capacity of 685 tons, of which 430 tons is bleached pulp and 205 tons unbleached pulp.

It is impossible for our domestic mills to supply sufficient

pulp for our paper mills, and on account of the increased manufacture and consumption of paper in this country the importa-

tions of chemical pulp have largely increased.

No new pulp mills have been erected in this country for some years past owing to the scarcity of suitable woodlands in the United States. Existing woodlands are now owned or controlled

United States. Existing woodlands are now owned or controlled largely by present pulp and paper milli owners, or lumber concerns, making it difficult for prospective pulp manufacturers to hope for any opportunity of profitable competition.

We respectfully refer to the brief read before, and filed with this committee at the hearing, November 21, 1908, and printed in Tariff Hearings, Sixtieth Congress, 1908-9, page 6021. The conditions of the industry therein described are still prevailing. The cost of the production of pulp in Europe has greatly increased The cost of the production of pulp in Europe has greatly increased in the past five years owing to the increased scarcity and resulting or hand of the cost of the past five years owing to the increased scarcity and resulting or hand of the cost o ing enhanced cost of wood and higher cost of labor, coal, ocean

freights, etc.

Foreign pulps command a higher price than domestic on account of their higher cost and quality. Under the present tariff, the foreign manufacturer of unbleached chemical pulp is under an additional cost of about \$10 per ton and of bleached pulp about \$12 per ton on account of charges for packing, foreign inland freight, ocean freight, importer's profit and duty, of which the domestic manufacturer has the advantage; consequently the foreign pulp must be, and is, sold at a higher price than the domestic, and the market today for foreign pulps rules from \$3 to \$4 per ton higher than for domestic. This comparatively small difference is made possible only by the economies of manufacture which are taken advantage of so generally in Europe, and so generally neglected in this country. For instance, with the exception of one mill here, all mills in this country burn sulphur to generate their sulphurous acid gases used in cooking the pulp; but abroad, the mills generally burn pyrites to get their sulphurous acid gases, resulting in a saving in cost of about

\$2 per ton of pulp.

In spite of the reluctance of the American manufacturer of pulp to use the most modern methods, no chemical pulp mill

has failed in business during the last sixteen years.

During the year 1912 some 285,000 tons of unbleached pulp, upon which about \$900,000 duty has been paid, were imported, and during the same period about 78,000 tons of bleached pulp, subject to a duty of about \$390,000 were imported, thus netting to the Government a revenue of over \$1,250,000 for the year. From these amounts of importations 46,000 tons of unbleached pulp—about one-sixth of the quantity—came from Canada, and from this about half was admitted free of duty. Of the bleached pulp importations some 6,000 tons—about onethirteenth of the quantity imported—came from Canada, all free

We ask that European pulps be placed on the same basis as the Canadian, as we consider the competition unfair and unreasonably discriminative, and at present of benefit only to the Canadian mills without any corresponding advantage accruing

to any American interests.

Any additional burdens placed upon pulp may possibly be to the advantage of the very few pulp mills who manufacture their product for sale, but it would add a heavy load to the nearly 400 paper manufacturers in this country who are obliged to buy their pulp, and it would place them at a great disadvantage

with the other paper mills having their own chemical pulp mills.

We further desire to point out to your honorable body the importance of retaining the tariff on woodpulp, whatever it may be, on a specific basis instead of on an ad valorem basis. value of pulp, whether bleached or unbleached, from the lowest grade to the highest, does not vary in the average more than 15 per cent, and in the majority of cases the variation in market values does not exceed 5 per cent. An ad valorem dutrise to differences in opinion as to market values, and

importer to severe penalties for possible unint valuations, and gives the opportunity to unscrup to undervalue importations and thus cause unf to others engaged in this industry.

We venture the opinion that the operation of the woodpulp schedule on a specific basis, has



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Production of Caustic Alkali and Bleach

Concluded from page 18

From this it proceeds by way of a series of short capillary tubes (1.5 mm. bore) to 22-in. tubes, which pass through the cell lids, and is thus fed in between the Regulation of the main supply to the cell is effected by means of a rubber tube and clip. This arrangement acts on the whole very satisfactorily, though the capillaries sometimes get stopped up. The causticized brine is drawn off from one side of the cell by means of siphon overflows. Three are provided, but one only is used in practice.

The heating arrangement used by Dr. Billiter in his diaphragm cell, though available for all other installations of his "membrane" cell, cannot be used at Grat-(The patent rights are not there available.) The cells are, therefore, provided with a heating arrangement which employs steam, the details of which, however, I cannot divulge here. When I was at Gratwein, the cells were being mostly worked at room temperature, whilst those few which were being heated

were working at 65 deg. to 70 deg. [C.]

The cells are arranged in four rows, two rows being worked in series, and are insulated by glass resting on concrete supports. Beneath the cells are arranged the chlorine and brine pipes, and a channel for the caustic liquors. The chloring pipe-line is constructed of cement, junctions being made by covering the ends with a cement box and filling up with asphalt. The current leads are of copper, those connecting the cells of circular cross-section and 3 cm. in diameter. They are all painted with a composition stable against chlorine and acid fumes, as are also the tin tubes and rubber connections referred to above. The cells are worked under slightly reduced pressure (½ cm. of water), and, as a matter of fact, no smell of chlorine was noticeable. Ventilation can be effected, if necessary, by blowing air in through the agency of a fan driven by a horsepower motor. A traveling-crane is provided to facilitate lifting off the tops of cells, etc.

Saturated brine is used, prepared in the simplest way. A long cement trough is filled with large lumps (20 to 40 cm.) of crude salt. Water enters continuously at one end, and saturated brine leaves at the other. It is not purified, and can be sent straight to the cells. The average cathode liquors produced contain 12 to 13 per cent NaOH and about 20 per cent NaCl. By decreasing the rate of flow of brine, 16 per cent NaOH can readily be made. Up to 350 litres of brine per cell are causticized in 24 hours. The liquors are first evaporated in two vacuum pans, furnished by the Skodawerke A.G., Pilsen, and similar to those used in sugar refineries. In these they are successively brought to 30 deg. and 40 deg. B. Then by means of a Kaufmann rapid evaporator they are brought to 50 deg. B. before going to the melting-house. The final product, which will probably be later somewhat improved upon, contains 97 per cent NaOH, 1.2 per cent Na₂CO₃, and 1.8 per cent NaCl. The chlorine is diluted and absorbed in milk of lime.

Cells which are worked at room temperature take about 4 volts. Those I saw working at 65 to 70 deg. require 3.4 to 3.5 volts. Long continued experiments carried out with a 250-ampere unit have shown that at the normal working temperature of 85 deg. the voltage falls to 3.1 volts (plus in all cases the voltage drop in the leads). The cathodic current efficiency is about 92 per cent for 3n to 4n alkali.

It remains to be added that wear and tear in the cells are very small. Under normal working conditions the anodes lose about 1 mm. in thickness at their bot-

toms and sides in two months. Suspended matter in the brine settles on the bottom of the cells, and the asbestos hoods remain unaffected. Finally, when once matters are adjusted, the whole system works automatically. The actual cell-room in Gratwein is worked by shifts of one workman only, whose duty it is to adjust the rates of flow in the different cells. Moderate fluctuations in rate of flow of brine or in current density result in a change in the alkalinity of the liquors produced, and in a corresponding small change in current efficiency. The cells at Gratwein work at a current density between the electrodes of about 2 amp. per sq. dm. only. With cells working at 85 deg. the most convenient figure, according to Billiter, is 4 to 6 amp. per sq. dm.; but, by suitably varying the other conditions,

14 amp. per sq. dm. can be employed.

The withdrawal of 350 litres of catholyte per cell per 24 hours corresponds to a movement of the brine of about 0.00007 cm. per second. The OH' ions in that part of the catholyte between the electrodes will have a velocity anodewards of just about the same magnitude. (E.g., assuming the cell to work at room temperature, the conductivity of the electrolyte would be about 0.5 recip. ohm per cu. cm., the velocity of the OH¹ ion at a voltage gradient of 1 volt per cm., 0.0018 cm. per sec., and the actual velocity $0.02 \times 0.0018 \div 0.05 =$ 0.000072 cm. per sec). This close approximation between the two opposing velocities, with the consequent straying of OH' ions towards the anode, is of course the chief cause of the 8 per cent deficiency in current efficiency, as the amount of chlorine which dissolves in the concentrated brine, and which would thus tend to be carried to the cathode, is very small.

In conclusion, I will again emphasize the chief characteristics of the Billiter-Leykam cell. They are-

Freedom from diaphragm troubles.
 Use of impure brine.

(3) Automatic working, great adaptability, and low attendance charges.

(4) Alkali (3n to 4n) strong compared with most other non-mercury cells.

(5) With heated cells, lowest energy consumption per ton of product of any of the electrolytic cells now working on a large scale.

Artificial Wood from Straw

RECENT invention is calculated to render great service in carpenter work by advantageously replacing natural wood. It took six years of study and experiments to solve the problem, but the latest results are said to be very satisfactory.

The process of manufacture consists in transforming straw into a solid substance, just as resistant as pine or oak; the stalks are cut up by a machine and reduced to a pulp by boiling and the addition of certain chemical substances. The pulp, reduced to a homogenous consistence is finally compressed under very heavy pressure. A raw material is thus obtained to which can be given all shapes, planks, beams, rafters, laths, beadings

and mouldings of all dimensions.

This artificial wood, according to Journal du Commerce du Bois can be easily sawed. Straw being everywhere comparatively cheap, the cost is not high. same straw wood also serves as fuel, it gives great heat and little smoke. It can also be used for the manufacture of matches, it is better than poplar and costs much less. It is made into wrapping paper, into bottles, little pitchers, and other similar articles. It lends itself readily to other uses and its employment will soon enter into common practice.

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Consul George Nicholas Ifft, Nuremberg, Germany, reports that corrugated double-faced fiber-board shipping cases are new to Nuremberg manufactureres and forwarding agents, and they are inclined to regard them favorably. There is much shipping in pasteboard boxes in Germany, not by freight, but by express, which is a department of the postal service. While there is practically no limit to what may be sent by parcel post, the tariff is so arranged that a weight of 10 pounds is not generally exceeded, and there might be a very good market for cases of this size. Forwarding agents state that there is no regulation that would prevent the use of fiber-board cases for freight shipments except in regard to celluloid goods, which must be packed in wooden boxes.

If the fiber-board cases are practical and cheap, there are hundreds of manufacturers here that would be interested in them. Just how to reach these people is, however, a more difficult question. There are several manufacturers of pasteboard boxes in Nuremberg, and one rather considerable concern that also manufactures corrugated pasteboard packing, but there are no middlemen—that is, no dealer who sells such product without also being the manufacturer. It would therefore seem that the best plan would be for American firms to send seem that the best plan would be for American nrms to send advertising matter, samples, and price lists to the large commission houses in Nuremberg and Fuerth [whose names are obtainable from the Bureau of Foreign and Domestic Commerce, Washington, D. C.]. They not only use large quantities of packing cases themselves, but they would recommend to the concerns they deal with any case that they found would be a money saver, as well as sell the same to the trade here in Germanv.

Production and Trade in Norway and Sweden

A review of the pulp and paper markets in Norway and Sweden in 1912, which appears in the December 21, 1912, issue of Farmand, the trade journal of Norway, contains the following

The production of sulphite cellulose in Norway and Sweden for export and for domestic consumption has been in recent years as follows, the figures being approximate estimates in tons of 2,000 lb.:

1912, 992,079; 1911, 842,165; *1910, 809,096; **1909, 615,089; 1908, 686,739; 1907, 570,997; 1906, 440,924.

The production for 1913 is estimated at approximately 1,025,-

148 short tons.

The production of sulphate cellulose in the two countries was 188,495 short tons in 1911, and is estimated at about 203,927 short tons for 1912, and 212,746 short tons for 1913.

The most recent of the new sulphite mills, which were erected in the two countries as a result of the market conditions in 1908, has come into full operation during 1912 and will reach its full production in the course of 1913.

The increase in production for the year 1912 is estimated at about 149,914 short tons, but the estimates for 1913 indicate a further increase of only 33,069 short tons.

Demand for American Blotting Paper

Replying to an inquiry from the United States, an American consular officer in a European country reports that there appears to be a good opening in his district for high-grade American blotting paper. Samples recently received favorably impressed local dealers, and it is desired that prices be furnished, quotations being made c. i. f. city of destination. The names of two firms that have expressed a willingness to enter into relations with American propulse them. with American manufacturers of this product accompanied the report and can be obtained by addressing the Bureau of Foreign and Domestic Commerce, citing file No. 10,156.

Raw Materials for Paper Mills Wanted

A party in Switzerland would like to communicate with some reliable American firms dealing in raw materials for paper mills, finished papers for the graphic arts, lithography, etc., machinery and metals used therein, and stationery of all kinds, with a view to securing the agency for one or several countries. Quote file No. 10,191 in addressing the Bureau of Foreign and Domestic Commerce.

SAVE YOUR WASTE IN "1913"

INVESTIGATE THE

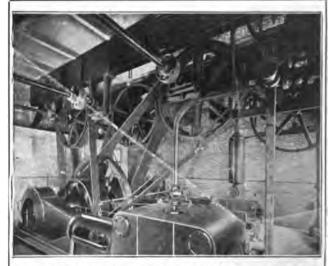
PNEUMATIC SAVE

(A NEW DESIGN FOR SMALL MILLS)

Write for Our Trial Offer

Improved Paper Machinery Co. NASHUA, N. H., U. S. A.

CORRESPONDENCE A PLEASURE



Power Plant of a large Mill. Two other plants of this Company are simil rly equipped with Hill American System Rope Drives

Hill Rope Drives

Are the correct solution to many problems in power trans-

Before deciding on belt or electric drive for your main power distribution, consult with us and obtain estimate on a Hill Rope Drive. Our Engineering Department will bring wide experience to bear on your problems, and guarantee an economical and efficient installation.

Hill Friction Clutches and Hill Collar Oiling Bearings are important features of complete installations furnished by us.

The Hill Clutch Co.

CLEVELAND, OHIO.

New York Office: 50 Church St.

^{*}The production declined about 27,558 short tons during the lockout in Norway in this year.

^{**}The production declined about 110,231 short tons during the general strike in Sweden in this year.



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Parsons Trading Company

Paper and Pulp

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NEW YORK, January 21, 1913.

MECHANICAL PULP

The situation in the market for ground wood remains practically unaltered, prices being maintained firmly in the face of a steady movement of supplies on outstanding contracts. There continues a good demand for news roll, with no prospects of any abatement in the near future, which serves to maintain a generally firm feeling among ground wood interests. Owing to the increased cost of wood in the European markets, prices on which have reached a level above general expectations, an advance of 10 to 15 per cent has been named on contracts for 1913 delivery. The tone of the market is decidedly firmer, and inquiries are more numerous.

FOREIGN AND DOMESTIC PULP

Increased strength is noted in the statistical position of markets the world over, and the tendency of values is decidedly upward. Reports from the principal European markets note advances in the prices of chemical pulp to a basis of 10 to 15 per cent on contracts for 1913 deliveries. The appreciation in value is based on the enhanced cost of wood and the increased demand for bleached and unbleached sulphite. In most quarters sellers abroad report having closed all supplies under contract for delivery over the next six months and are holding back for higher prices. Arrivals at the port of New York during the interval show a slight increase, but deliveries comprised supplies previously sold under contract, which passed into direct consumption.

BAGGING, ROPE, ETC.

The business of the past week has been confined principally to withdrawals on outstanding orders. The movement of goods in transit is still hampered by congestion in railroad freight. Prices have been more or less stationary and in most instances little inclination has been evinced to urge sales by price concessions. Firm reports from primary markets abroad and moderate available supplies are sure to impart a confident feeling to holders.

Gunny, No. 1—	Wool Tares, heavy 1.20 @ 1.25
Domestic 1.50 @ 1.60	Foreign Manila Rope 2.45-@ 2.60
Foreign 1.50 @ 1.60	Domestic Rope 2.45 @ 2.60
Light Burlap1.20 @ 1.30	New Burlap Cut-
Mixed Bagging 85 @ .90	tings
Sound Bagging 95 @ 1.00	Flax Waste, washed .1.80 @ 2.85
Wool Tares, light 1.20 @ 1.30	

IMPORTED RAGS

In some quarters importers note slightly better inquiries, particularly for cuttings for prompt as well as forward delivery. The call for supplies on outstanding orders continues brisk and recent arrivals passed into direct consumption. Prices covering the entire list closed firm but quotably unchanged. Owing to the shortage of wood the outlook is encouraging for a steady increase in the consumption of rags.

German Blue Cot-	Old Linen, White 3.75 @ 5.25
tons1.85 @ 1.70	Old Linen, Gray 2.75 @ 4.59
Dutch Blues1.80 @ 1.85 Light Prints1.80 @ 2.00	German Colored Cot- tons1.35 @ 1.45
Extra Light Prints 2.00 @ 2.25	Medium Light Prints 1.50 @ 1.60
New Mixed Cuttings 2.00 @ 2.70	Old Linen Blues 2.37-@ 4.50
New Light Cuttings . 3.75 @ 4.50	Dark Colored Cottons 1.20 @ 1.30

DOMESTIC RAGS

A firm tone dominates the market for all kinds of rags, in view of moderate stocks and strong cable advices from foreign markets. The recent advances in woodpulp and prospective further appreciation of values, owing to short supplies, have imparted a firmer feeling to local holders of rags. Deliveries on outstanding orders

are still restricted by railroad freight congestion, but relief is looked for in the near future. Quotations are maintained firmly under a fair demand and most holders refuse to make concessions, particularly on selected parcels.

New Shirt Cuttings, No. 1	No. 1 Whites
New Light Seconds 3.25 @ 3.50 New Black Cottons 1.25 @ 2.00	No. 1 Tailors' Raga

OLD PAPERS

Inquiries are more numerous, but orders booked by leading dealers, covered fair lines, involving mostly lower grades at former firm prices. The movement of supplies is still hampered by freight congestion but it is intimated that relief is near at hand. In most quarters an early renewal of activity is anticipated and owing to moderate stocks, still higher prices may prevail.

No. 1 Hard White		Extra New Manila	
Shavings2.45 @	2.60	Cuttings1.30	1.40
No. 2 Hard White		New Manila Cuttings 1.05	1.10
Shavings 2 10 @	2 15	No. 1 Old Manila 60 @	.70
Shavings2.10 @ No. 1 Soft White		No. 2 Old Manila 45	.50
Shavings1.75 @	1 90	New Box Board Chips .55	.60
Susvings	1.00		.00
No. 1 Colored		Bogus and Mill	
Shavings	.85	Wrappers55 🚳	.60
No. 2 Colored		Strictly Over:ssue	
Shavings	.60	News	.70
Magazine Flat Stock .85 @	.90	Folded News	.60
No. 1. Crumpled	.80	No. 1 Mixed Ne s 48	.50
Solid Ledger Stock 1.65 @		No. 1 Mixed Par vs47%	.50
Ledger Stock 1.40 @		Common Papers35	.40
		Common rapors	.40
No. 1 White News 1.25 @	1.30		

TWINES

During the week under review the market for twines has been featureless and aside from withdrawals on unexpired orders, business in the interval has been slow. Prices are steady in sympathy with the strong markets for the raw material and manufacturers as a rule are naming the inside range of values as positively the lowest.

Sisal Hay9 Sisal Lath Yarn71/3 Manila Rope13	a	14	Jute Twines. 414 & 6 914 @ Marline Jute, 414 . 914 @ Marline Jute. 6 914 @	10 10 10
Manila Rope No. 2 . 11 Jute Rope 7 1/2	4	13	Marline Jute, 7 9 A Marline Jute, 8 & 9 . 8 4 6	914
Jute Wrappings, 2 to 6 ply—	•	Ū	B. C. Hemp. 18 17 1/2 @	18 18 18
No. 111 No. 210	2	12 11	B. C. Hemp, 36 16 1/4 B. Hemp, 18 18 1/4 6	17 X
Jute Twines, 18121/2 Jute Twines, 2412	9	13 1/2 13	B. Hemp, 24 18	19 1814
Jute Twines, 36111/2	0	121/2	Amer. Hemp, 41/266 13 @	14

Continued on page 38

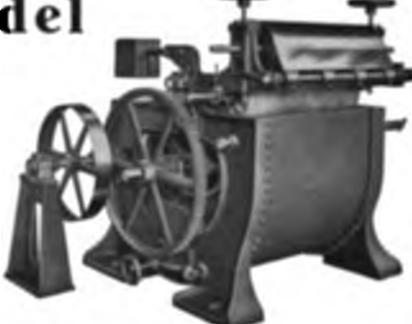
Scandinavian-American Trading Company
PRODUCE EXCHANGE BUILDING, NEW YORK
IMPORTERS AND EXPORTERS OF FOREIGN AND DOMESTIC
WOOD PULP
OF ALL KINDS
AND
PAPER MILL SUPPLIES
HANS LAGERLOF, PRES.

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W'ANDEL SCREEN MFG. CO.

WALPOLE, MASS.

FOURDRINIER PAPER MACHINE .



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The Sandy Hill Iron and Brass Works

BUDSON FALLS, N. Y.

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Digitized by GOOSIC

The Markets

Continued from page 36

CHEMICALS

The active demand for papermaking chemicals has subsided to some extent since our last and new business booked has covered only moderate invoices, principally for immediate consumption, only moderate invoices, principally for immediate consumption, at slightly lower prices on some varieties. Under a slow demand, prices for bleaching powder on the spot have eased off a trifle; with holders offering at 1.50 cents and upward. There continues a steady inquiry for supplies on unexpired outstanding orders, Caustic soda has been fairly active and in the absence of keen competition, prices are steadier, closing at 1.60 cents and upward for 60 per cent, f.o.b., plant. Alum is in steady request at prices ranging from 2 cents and upward and at 17/sc. and upward for powdered and ground, respectively, as to terms of sale. New orders for brimstone covered moderate lines at New orders for brimstone covered moderate lines at \$22 and upwards per ton, as to terms of sale. The movement of supplies on outstanding contracts continues of average pro-portions. China clay is attracting some attention and under moderate offerings due to a scarcity of stocks on the spot, prices are maintained firmly and tending upward. Holders are quoting from \$8.50 and upward for domestic and from \$12 and upward per ton for imported, as to quantity and quality. Additional sales involving invoices for delivery up to the end of February, Additional have been booked at former prices.

Imports—Rags and Paper Stock

AT NEW YORK

Week Ended January 18, 1913

Atterbury Bros., Str. Bramley, Hamburg, 51 bs. old rags. Castle, Gottheil & Overton, by same, 37 bs. rags. Parsons Trading Co., Str. Cedric, Liverpool, 22 bs. newsprint. Hudson Trading Co., Str. Caroline, Dunkirk, 90 bs. bagging. Atterbury Bros., Str. Hamburg, Hamburg, 79 bs. bagging. Salomon Bros. & Co., Str. Main, Bremen, 180 bs. bagging, 54 bs. rags.

Katzenstein, by same, 178 bs. rags.

M. J. Corbett & Co., by same, 11 bs. rags.
E. Butterworth & Co., by same, 124 bs. rags.
Paul Berlowitz & Co., by same, 65 bs. rags, 19 bs. old rope,

57 bs. card waste.

Atterbury Bros., Str. Minnewaska, London, 55 bs. new cuttings.

Hudson Trading Co., Str. Clan McBride, Dundee, 353 bs. rags.

Parsons Trading Co., Str. Zuiderdyk, Rotterdam, 62 cs. printing

paper.
Atterbury Bros., Str. Rochambeau, Havre, 179 bs. old rags.
Hudson Trading Co., Str. Clan McBride, Dundee, 370 bs. rags.
Marx Maier, Str. Mexico, Havre, 736 bs. rags, 47 bs. old bagging.
Atterbury Bros., Str. Minnetonka, London, 181 bs. waste paper.
Maurice O'Meara & Co., Str. Nieuw Amsterdam, 41 bs. new cuttings.

Felix Salomon & Co., by same, 79 bs. old rags.
Salomon Bros. & Co., by same, 77 bs. old, 56 bs. sound bagging.
Maurice O'Meara & Co., Str. President Grant, Hamburg, 80 bs. new rags

os. new rags.
Felix Salomon & Co., by same, 17 coils old rope, 204 bs. bagging, 70 bs. new cuttings, 220 bs. rags.
Salomon Bros. & Co., by same, 81 bs. rags, 2 bs. jute waste.
Leonard B. Schoenfeld & Co., Str. Armenian, Liverpool, 89 bs. new rags.

E. Butterworth & Co., by same, 15 bs. old bagging.

Woodpulp

Castle, Gottheil & Overton, Str. Bramley, Hamburg, 200 bs. (40 tons).

M. Gottesman & Son, Str. Lodovica, Trieste, 872 bs. (150 tons). Felix Salomon & Co., by same, 1,732 bs. (248 tons). E. Butterworth & Co., by same, 628 bs. (78 tons). The Bergock Co., Str. President Grant, Hamburg, 300 bs. (60

tons). tons).

Scandinavian American Trading Co., by same, 500 bs. (50 tons).

Felix Salomon & Co., by same, 2,280 bs. (260 tons).

Perkins, Goodwin & Co., by same, 500 bs. (63 tons).

Price & Pierce, by same, 250 bs. (30 tons).

Ira Beebe & Co., by same, 500 bs. (60 tons).

Price & Pierce, Str. C. F. Tietjen, Copenhagen, 600 bs. (100 tons).

Scandinavian American Trading Co., 200 bs. (25 tons).

J. Andersen & Co., by same, 5 200 bs. (650 tons).

J. Andersen & Co., by same, 5,200 bs. (650 tons).

Parsons Trading Co., by same, 1,080 bs. (135 tons), 1 package. M. Gottesman & Son, Str. Main, Bremen, 789 bs. (93 tons).

Chemicals

Perkins, Goodwin & Co., Str. Cedric, Liverpool, 215 csks. china

J. L. & D. S. Riker, by same, 200 drs. caustic soda.

Arnold Hoffman & Co., Str. Armenian, Liverpool, 109 csks.

bleaching powder.

J. L. & D. S. Riker, by same, 42 csks., 50 bbls. bleaching powder.

Edward Hills Son & Co., by same, 25 drs. caustic soda.

Arnold Hoffman & Co., Str. Megantic, Liverpool, 76 csks. bleachind powder.

AT BOSTON

Hudson Trading Co., Str. Numidian, Leith, 77 bs. old rags. Atterbury Bros., Str. Sagamore, Liverpool, 98 bs. waste paper. Castle, Gottheil & Overton, Str. Manitou, Antwerp, 262 bs. waste paper.

Marx Maier, by same, 162 bs. new cuttings, 77 bs. rags.
Atterbury Bros., Str. Bostonian, Manchester, 86 bs. bagging.
Marx Maier, by same, 65 bs. new cuttings.
Castle, Gottheil & Overton, Str. Cambrian, London, 133 bs. waste

paper, 87 coils old rope.

Katzenstein, by same, 114 bs. cuttings.

Atterbury Bros., Str. Batavia, Hamburg, 726 bs. old rags. M. Gottesman & Son, by same, 400 bs. (75 tons) woodpulp. Castle, Gottheil & Overton, Str. Bohemian, Liverpool, 44 bs. old

AT NEWPORT NEWS

Marx Maier, Str. Sloterdyk, Rotterdam, 43 bs. rags.

AT BALTIMORE

Atterbury Bros., Str. Pretoria, Hamburg, 226 bs. rags. Hudson Trading Co., by same, Bremen, 139 bs. old rags. Castle, Gottheil & Overton, Str. Assyria, Hamburg, 1,500 bs.

Castle, Gottheil & Overton, Str. Assyria, riamburg, 1,500 bs. (300 tons) woodpulp.

Atterbury Bros., Str. Soestdyk, Rotterdam, 121 bs. bagging.
Castle, Gottheil & Overton, Str. Peruvian, Leith, 198 bs. rags.
Castle, Gottheil & Overton, Str. Columbian, Antwerp, 82 bs. old bagging, (Havre), 196 bs. 70 bs. rags.

A. Katzenstein, by same, 345 bs. rags.
Castle, Gottheil & Overton, Str. Batavia, Hamburg, 1,475 bs.

(295 tons) woodpulp.

AT NEW ORLEANS

Castle, Gottheil & Overton, Str. Oxonian, London, 362 bs., 1,416 bs. waste paper, 207 bs. rags, 169 bs. old bagging.

AT PHILADELPHIA

Castle, Gottheil & Overton, by same, 69 bs. waste paper, 14 bs. new cuttings.

Scandinavian American Trading Co., Str. Karl Schurz, Hamburg, 454 bs. (58 tons) woodpulp.

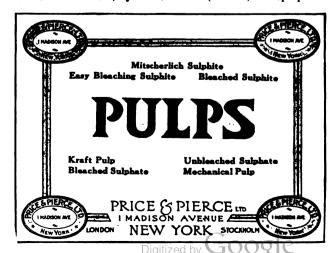
Castle, Gottheil & Overton, by same, 76 bs. waste paper, 240 bs. 62 bs., 66 bs. rags.

F. B. Vandergrift & Co., by same, 87 bs. paper stock.

F. B. Vandergrift & Co., by same, 87 bs. paper stock.
Stratford Oakum Co., by same, 209 coils old rope.
W. T. Moore, Str. Mackinaw, London, 202 bs. rags.
Castle, Gottheil & Overton, Str. Carthaginian, Glasgow, 99 bs., 117 bs., 74 bs., 206 bs. rags.
Scandinavian American Trading Co., Str. Teresa, Hamburg, 450 bs. (45 tons) woodpulp.
Castle, Gottheil & Overton, Str. Manitou, Antwerp, 89 bs. rags.
M. Gottesman & Son, Str. Graf Waldersee, Hamburg, 800 bs. (150 tons) woodpulp.

(150 tons) woodpulp.
Castle, Gottheil & Overton, Str. Start Point, London, 70 bs. waste paper

Felix Salomon & Co., by same, 400 bs. (50 tons) woodpulp.



Acme Shakeless Deckel Frame Supports



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147 Paper Machines

HUBAND & NASH COMPANY, Menasha, Wia.

POSITIVE JORDAN ENGINE LININGS

Made of a majory of IRON, STILL and MANIAMIN



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SALESMAN—A first class man now employed selling all kinds of tissue, and with good following wants to make a change. Only mill connection desired. Address "Cylinder," care of PAPER.

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The Services of this Bureau are FREE

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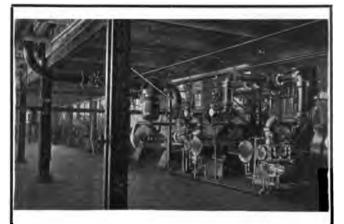
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SPECIAL Couch, Press and Suction Rolls

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Four-Cylinder Paper Mill Engine

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ALL the delays and uncertainties of variable speed transmission gearing are eliminated. The power consumed by such complicated transmissions is saved.

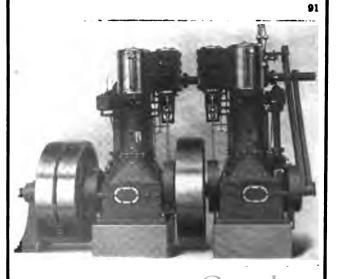
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Measures the bursting strength of all kinds of paper and boards. The paper is firmly clamped against a rubber diaphragm through which is applied the direct fluid pressure on a square inch circular area. The pressure required to burst the paper is registered on an accurate gauge of suitable form, reading in pounds per square inch. This is the test required by the United States Government on all Government paper supplies.

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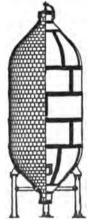
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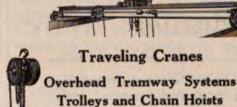
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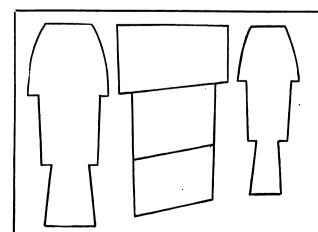
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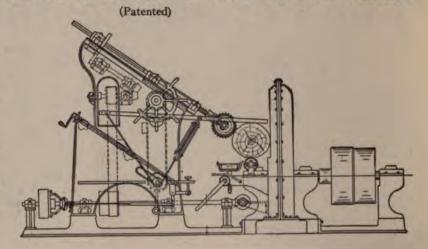


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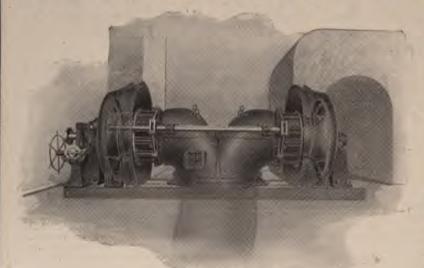


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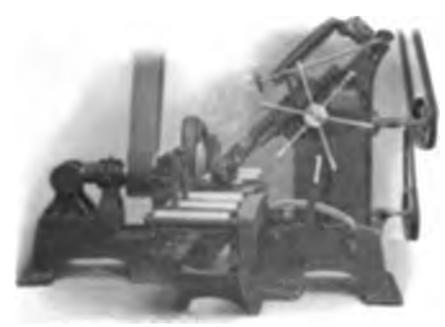
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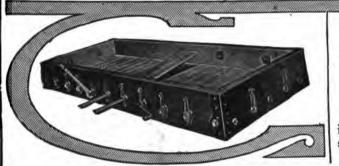
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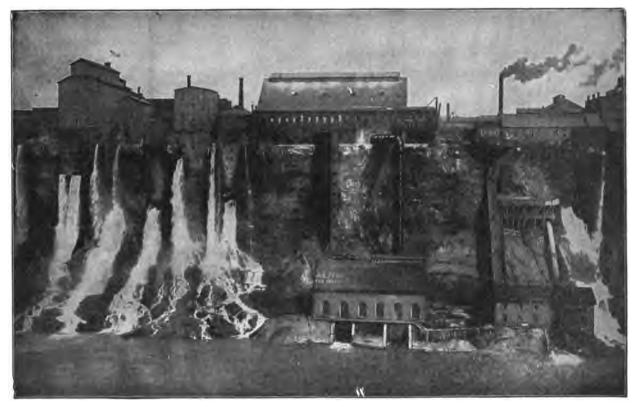
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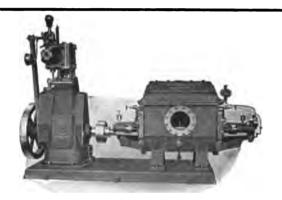
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Methods of Estimating the Quality of Paper

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the individual wherever the properties of a paper may be given a numerical value.

The general examination of paper may be subdivided into three parts as follows:

Microscopical examination.

Physical tests. Chemical analysis.

A microscopical examination will disclose the kind or kinds of fibers from which a given paper was made, and the experienced man will with considerable accuracy be enabled to estimate the proportions of various kinds of fibers used. The microscope also helps to indicate how much a stock has been beaten.

The testing to determine the physical properties of a paper is divided into determining: weight per ream, thickness, bursting strength, tensile strength, folding

endurance, expansion and absorption.

The chemical analysis will disclose the amount of ash retained and the amount and kind of size used. A chemical examination will also give much information in regard to colors used. All of this information is of the utmost importance in determining the quality of a

The principal purpose of a microscopical examination is to determine what fiber or fibers were used in making a paper, and then to estimate the relative proportion of each on a basis of 100 per cent for the total fiber composition. Such an examination requires the following apparatus: beakers, test tubes, slides for microscope, two long pointed steel dissecting needles, bunsen burner and tripod stand (or other means of heating sample), one large bottle of a ½ per cent solution of caustic soda, one small bottle of 25 per cent hydrochloric acid, six small dark colored glass bottles, with dropping stoppers for stains, small pieces of filter paper and a microscope which for ordinary work should be capable of magnifying about forty-five times. The binocular microscope will be found to be best suited for estimating work where it is desired to study the markings and special characteristics of a fiber, then a microscope capable of magnifying from 150 to 200 times should be used.

As all vegetable fibers are highly transparent and almost entirely colorless, when seen under the microscope, it is very necessary to use some staining solution to color the fiber in order to bring out their size and shape and general markings. The best stain for this purpose is the so called "Herzberg" stain, which is what is known as a selective stain, that is, it has the property of giving a yellow color to most uncooked fiber, such as mechanical wood; chemical woodpulps are colored an indigo blue; and cotton, linen and some other fibers are colored a wine red.

This staining solution is made up as follows:

SOLUTION "A" Gm. 20 SOLUTION "B"

Dissolve "A" by adding the water to the zinc chloride in a

glass beaker.

Dissolve "B" by adding a few drops of the water to the potassium iodide and iodine crystals in a glass beaker and after dissolving add the remainder of the 5 Cc. of water.

The two solutions—"A" and "B"—are then mixed together and allowed to stand for twenty-four hours to settle, after which the clear liquid may be poured off and divided between two of the dark glass bottles with the dropping stoppers. All iodine solutions will fade in light, and should, therefore, be kept in the dark as much as possible.

It is a very good plan to use two more of the dropper stoppered bottles to keep a concentrated solution of zinc chloride and water in one and a concentrated solution of potassium iodide and iodine in water in the second; these two solutions will be found handy in

adjusting the Herzberg stain.

The preparation of a sample of paper for the microscope is as follows: Several small pieces of paper of about the area of a cent are cut from different parts of the sheet of paper; these pieces are then placed in a beaker and covered with ½ per cent caustic soda solution, the whole mass is then brought to boil over a suitable heating device. After boiling for about a minute, the liquid is poured off and some tap water added to wash out the caustic soda, and two or three drops of a 25 per cent hydrochloric acid solution added to neutralize the alkali.

The slightly acid solution is then poured off and enough of the small pieces of paper is pinched off and rolled into a ball of about the size of a pea. This small ball of pulp should be well rolled between the thumb and finger and then placed in a test tube and the test i tube about half filled with water. Care must be exercised to rinse the hands after working each sample, to keep from contaminating the sample following. The test tube is then shaken vigorously until the paper has been entirely broken up and the fibers are well separated. A few fibers are next removed on the point of the microscope needle from the test tube, and a small sample is placed on each end of one of the microscope slides. The slide should be held in the holder over some black surface, as it is a great help to the eye to look at the white fibers against a black background. The wet fibers on a slide may best be dried by covering them with good filter paper and left for a few minutes to dry in the air.

The fibers are thoroughly dried and a drop of the Herzberg stain is added, and then the fibers are well "teased" out by the use of two microscope needles, a cover glass is placed upon the fibers and well pressed down, all the stain pressed out around the edges of the glass being removed with filter paper, and the slide polished with paper or cloth.

The slide is next placed under the microscope and after studying the various fields an estimate of the proportion of each of the various kinds of fibers may

be given.

It is best to use four stains for this work, that is, each stain is of slightly different strength as each one gives the best results on certain fibers. For example, a stain that clearly brings out the wine red color on cotton and linen fabrics, as a rule, usually does not give the best blue color on bleached soda and sulphite pulp; this same stain on ground woodpulp has almost no effect at all.

In making up a stain to produce the best color on the particular fiber, the following points should be remembered:

Two or three drops of water added to a good stain for rag and bleached chemical wood will tend to fade out the wine red color, the blue color will remain nearly unchanged, and the yellow color on ground wood will be brought out very much clearer. In other words, a good rag stain, when used on ground wood, produces almost no coloring of the ground wood fibers.

The addition of two or three drops from the bottle containing the concentrated solution of iodine and potassium iodide, in water, will produce a deeper wine red on rag fibers, while the addition of a few drops of

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The Protection of Patented Inventions

The Difficulty of Guarding Chemical Patents Against Infringements—The Oldfield Bill

By L. H. BAEKELAND, Ph. D.

Con luded from January 8



OW and then, I have perceived that some of my fellow chemists, who although highly trained, have never created anything of technical value, and whose experience with matters of practical life frequently extends not beyond the confines of their lecture room, or their laboratory, do not

seem to grasp fully the immense distance that lies between the initial conception of an invention, or its study in the laboratory, and the overwhelming amount of careful work and money risks connected with its development on a commercial scale, until it has safely reached the point where the public can avail itself of the invention

I wish to cite, for instance, the famous Solvay process, which gives us cheap, excellent and abundant soda, an article of prominent importance in the wheels of our civilization. This process was known and described more than a dozen times, and had even been tried repeatedly at considerable loss, on a commercial scale, many years before Solvay tied his genius to this difficult problem and developed from an unreliable laboratory reaction, a process of great industrial importance; then, with a staff of able collaborators, and the employment of large amounts of cash, he overcame, by and by, the technical drawbacks which had caused the failure of all of his predecessors.

Hundreds of similar examples could be cited. Whoever has been intimately acquainted with the commercial development of some of the most successful inventions, knows quite well the risks, dangers of failure, which have accompanied the herculean task of development and educational work. It is a well established fact that the great majority of new enterprises fail, that few succeed.

The educational effect due to the introduction of patented inventions is of immense benefit to the public, although this fact is not very apparent to most people. In many instances, the owner of a patent frequently has to go to extreme sacrifices before he succeeds in convincing the public of the merits of his invention; in fact, the public stubbornly refuses to benefit by an improvement to which it has not been fully educated.

The practical value of cash registers only became obvious after a most thorough and very expensive educational campaign.

The metric system is just as useful as the cash register; it was invented long ago and systematized in all its details during the first French republic. Nevertheless, today, there are still two large commercial countries, the United States and England, which have not yet been educated to its merits; if the metric system had been patented, like the "cash register", somebody, during the seventeen years of the patent monopoly, would have under taken the money risk and arduous task of thoroughly explaining the advantages of the metric system to our conservative citizens, and we would have ceased long ago to submit to the burden of waste of time and money caused by our antiquated, cumbersome system of weights and measures.

It has been stated, with much reason, that the best way to postpone the benefits of an invention, is to allow public use of a patent, because then nobody takes the risk of starting an educational campaign or of developing the invention, which after all means pulling the chestnuts out of the fire for the benefit of others.

Entirely new industrial enterprises are not easily started on inventions which are not patented, unless some other method is available for insuring some kind of a monopoly; for instance, by maintaining secrecy or by acquiring special skill, or by controlling the raw material, or by tying the market, or in other instances where the initial outlay for a plant requires a capital so large as to exclude others.

Moreover, if you scrutinize those industries where secrecy of methods, instead of published patents, is the prevailing tendency, you will find that the secret-process-industries are precisely those which have least progress to record, and where high prices rule.

Whoever desires to get posted on the modern literature pertaining to any industrial chemical processes, will find that available text-books are many years behind in information so far as novelty and accuracy are concerned; for this reason alone, it is indispensable to get acquainted with all recent patent literature.

Were it not for the compensation expected from patent rights, most of this information would be carefully kept secret, or if it were divulged at all, this would mostly occur by accident. Every newly published patent sets to work the thinking cells of numerous inventors, who are not slow to suggest further possible improvements. Every patent of some importance, is rapidly followed by a succession of other patents conceived by other inventors, who were inspired by their predecessors, and so the work of progress goes on unceasingly and at a quickened pace.

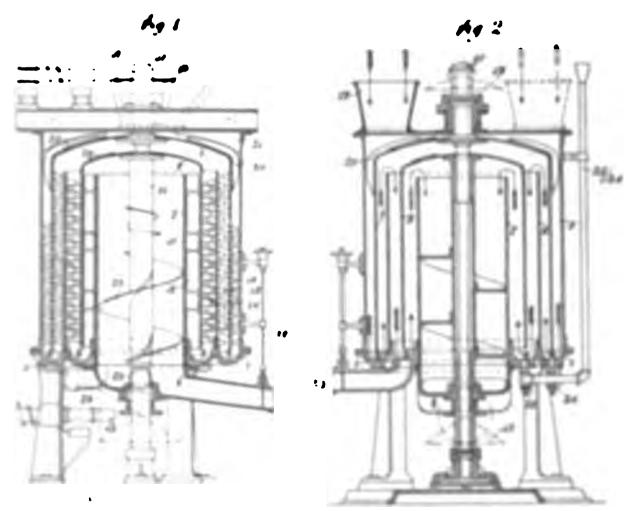
In the age of the alchemists, there were no patents; inventions and discoveries were jealously guarded and buried with their originators, and the world and its inhabitants remained very much what they were with most rights and comforts in the possession of those in power, and very little chance of improvement for the nonprivileged classes.

The public should be educated in these truisms. Unfortunately, the education of the public has been directed in the opposite way since patent infringers have utilized the daily press, after the late decision of the Supreme Court in the Dick case, to start a campaign for urging our well meaning but ill-prepared legislators towards patent reform, which will give still broader scope to our modern buccaneers. This reminds me of the man who, after stealing a stranger's pocketbook, kept on shouting "stop thief", so as to distract the attention from himself.

Woodpulp Machinery Wanted

A report from an American consul in a Latin-American country states that a local business firm is in the market for machinery for the manufacture of wood pulp for paper and would like to receive specifications, including blue prints, instructions for its use, and other information necessary for the establishment of factories for the manufacture of woodpulp in merchantable quantities. In applying for the address of the inquirer to the Bureau of Foreign and Domestic Commerce file No. 10,106 should be quoted.

New Papermaking Inventions

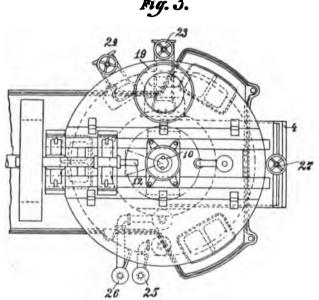


cylinders is designed so that they are fixed around the cylinder walls at equal distances apart in horizontal planes which are at uniform distances from one another. In a similar manner the kneading devices are situated between these planes on the bell mantle, so that they pass, at the rotation of the bell, the fixed studs at a uniformly small distance without contact taking place

For coarse materials such as boiled cellulose wood, a machine with two cylinders and one bell may be sufficient, but for hard sized paper stuff, the fiber separator is preferably provided with at least two bells and three cylinders, as illustrated by way of example in

the accompanying drawings.

Figure 1 shows a vertical section through the cylinders and bells to the driving axle. Fig. 2 is a vertical



PLAN OF THE KURTZ-HAENHLE DISINTEGRATOR

section similar to Fig. 1 but at right angles thereto, and Fig. 3 is a plan of the machine.

The separator consists essentially of a fixed round bottom 1 with suitably rounded grooves 2 and 3 and the central exit 4, on which are fixed concentrically three cylinders 5, 6, 7 open at the top, between which are situated two bells, 8 and 9. Of these bells, the outer one is situated on a solid axle 10 and the inner one on a hollow axle 11. Each of these bells is driven separately by gearing devices 12 and 13, the inner bell receiving a higher number of revolutions corresponding to its lesser circumference.

The driving of both bells may be effected either from below or from above. The number of bells and cylinders may be suitably increased, according to requirement. The bells may also be formed by several

cylinders situated on a foundation plate.

The sides of the bells are provided inside and outside with kneading devices, and the sides of the cylinders facing the sides of the bells are also provided in a similar manner. The formation of the kneading elements is designed according to the increasing fineness of the material treated. In the outer sets the separation of the fibers is effected by large kneading devices 14, widely apart, the middle sets, 15 and 16, are smaller and less widely apart, and the inner sets for the complete dissolution of the stuff carries scrapers 17 which pass at a small distance from the opposite wall over the stuff moving vertically, and which co-act with other scrapers 18 provided between them in regular succession for the purpose of turning the scraped stuff, so that it is kneaded through from the other side and

finally opened up.

The forward movement of material to be separated into fibers and introduced through a funnel 19 is effected by rotating devices 20, which feed the material to the separating studs. On the cover of the machine are provided fixed devices 21, coacting with the devices 20, of a shape which facilitates the forward movement of the material as much as possible. A transporting spiral or worm 22 situated in the cylinder 7 serves the same purpose and facilitates the discharge of the material to the outlet 4.

At the bottom of the receptacle 1, are provided cleaning pipes 23 and 24 leading from the grooves 3 and 2 respectively, which pipes receive any foreign matter carried by the material falling into them, and also facilitate the quick emptying and cleaning of the

In order to prevent the paper pulp becoming too thick in the interior of the separator water admission services 25 and 26 are provided leading to the grooves 3 and 2 respectively, which may be connected to available steam pipes for the more easy opening up of very

hard sized paper waste.

The exit opening may be closed by a slide 27 in order to stop the flow and to effect when necessary a slower passage of the material through the separator. In the domes of the bells there are provided peep holes 28 and 29. By the construction of the side and intermediate walls with double walls the apparatus may be

adapted to be heated as may be desired.

The working of the new fiber separator is as follows: The material to be separated into fibers is fed, well moistened, through the funnel 19 at the top between the rotary bell 8 and the outer cylinder 5, it then moves downward, reverses on the groove 2 in the bottom plate of the receptacle 1, rises between the bell 8 and the cylinder 6, passes over the rim of the cylinder 6, moves downward between the latter and the bell 9, and after being separated into its fibers under the influence of the studs and the scrapers 17, 18, finally falls into the inner space of the cylinder 7 whence it issues as fiber pulp through the central exit 4 in the bottom.

The forward movement of the material is effected by itself if in sufficiently liquid condition, the inner cylinders are arranged lower than the outer cylinders, or in a spiral or worm 20 is provided fixed to the bell and pressing downward, or the oblique position of the flat studs is utilized or suction from the exit orifice is adopted. Preferably the axle rotating in the innermost cylinder is provided with a spiral or worm 22 which facilitates the exit of the material.

The Secret of Swedish Filter Paper

The secret of the popularity of the Swedish filter paper is due to the climatic conditions of the country of manufacture. According to Fornstedt (PAPER, January 1, 1913, p. 18), the finest qualities of filter paper can only be made in the winter time in cold countries. In the course of manufacture, after the paper has been formed and washed thoroughly to remove all traces of chlorine and acidity, it is pressed and hung out in open barns in order to freeze it. The paper is made soft and porous by the freezing process, since the ice crystals formed within its substance serve to drive the fibers apart and increase its absorptive capacity. ments have been tried of subjecting paper that has been dried in a warm atmosphere to a subsequent freezing operation in order to impart the desired softness and porosity, but with poor success.

Wood Waste Utilization

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competent chemical and engineering information and experience here. It is chiefly because the idea of the process has been overrated.

The man who can invent and think out a real idea suitable for a process has done his share. In nearly every other industry we realize that the type of mind capable of inventing is not the type most suitable for designing and constructing or managing a plant or for developing and criticizing his own process.

Why in this industry do we so magnify process and expect the inventor to be more superhuman than we Why do we load him with the whole do elsewhere? responsibility of success or failure instead of calling in the best man available to his assistance? And why do we invest in this industry on an interested man's mere word without calling in competent advice?

Within this present year I talked with an inventor anxious to interest capital in his process of recovering turpentine and rosin from wood. The conversation developed his supposition that no one else was doing this or had workable methods for doing it, and that the only thing he had to compete with was the destructive distilling type plant of thirty years ago. If the inventor, supposed to be expert in his subject, thinks this, why should we be surprised if he convinces the investor?

The process is one element of success; a good process is necessary, yes, but it is only one element, and there are many others. The character and cost of the raw material is most important and deserves an article by itself. The marketability of products has been overlooked again and again on the assumption that turpentine is turpentine and rosin is rosin. Sometimes they are, and sometimes they are not. The fact that John Jones sold his druggist a gallon of pine oil for ten dollars doesn't give you a clue as to its price and consumption in tank car lots. If you read that light oil or heavy oil is quoted at fifteen cents per gallon, that does not indicate that you can sell light oil or heavy oil from white pine at that price, or necessarily at any price.

There is really just one way to determine the marketability and price of a product and that is to sell it or products identical with it on the open market. And then, as mentioned before, the location of plant as related to raw material and market, the design, construction and management should all be done in consultation with men who have been handling this same type of installation as chemists and engineers.

A frequent mistake lies in placing the problem before an analytical chemist. He may be an exceptionally good chemist, and may give accurate reports that will be entirely misleading through no fault of his own. I have before me now such a report on a process made by a thoroughly competent analytical chemist. The report so far as I can see was correct in all respects. Unfortunately, however, from lack of specific information which he could not be supposed to possess, the report indicated success to the chemist and to the investor. A single reading of it would have convinced a man experienced in the industry that nothing but failure lay ahead, unless many things were radically changed. The report actually led to one more useless expenditure of money.

It seems probable that nearly every possible error has been made at some place or time. Most of the mistakes could have been avoided if competent experts, of whom there are a sufficient number, had been kept in touch with the work from its inception. Unfortunately in many cases the man of training and experience in this particular industry has never been called in at all. In other cases he comes to give decent interment or shorten useless suffering.

Gummed Paper

REPLYING to a query the Papier Zeitung recommends the addition of mends the addition of glucose to the gum arabic mucilage, as a better preventive of curling as a result of gumming than glycerin, which, if added to the gum solution, even in small quantities, may readily affect its adhesive properties. Glucose, on the contrary, does not do that. It contains, in addition to 60 to 70 per cent of pure grape sugar, about 10 to 15 per cent of water of crystallization and 30 to 15 per cent of dextrin, a sticky, adhesive substance that is, in this instance, of special value because it readily assimilates with the gum and does not impair its adhesiveness.

The addition of glucose to the adhesive compound prevents the curling of the paper much better than There should be added to the adhesive, according to its degreee of thickness, from 3 to 10 per cent of glucose. For coating, the paper should not be too dry, otherwise it will be more liable to curl on being moistened with the adhesive than paper possessing the right degree of dryness, it is even better if the paper is damp when gummed, then it will stay nice and flat. This is the ground for the addition of glycerin to the adhesive; it attracts the moisture in the atmosphere and consequently keeps the gummed paper always slightly moist, without causing the gummed surfaces to stick together or roll, when stored.

It is recommended to keep the paper to be gummed in a somewhat damp place. If the paper is very tough and translucent it curls very readily immediately on the application of the adhesive, even if glucose or glycerin has been added to it. For this reason a paper that has little rattle, is not very translucent, but is well sized, should be selected for gumming.

The breaking of gummed paper over a blunt edge, is likewise considered, in the same publication, by a correspondent who regards it as a defect because the cheaper papers are thereby so damaged that they readily pull apart. The addition of glycerin should be small, say, 1 to 2 drachms to every 2 lb. of thick gum solution. In addition a little sugar that has previously been dissolved in some warm water, should be added; this addition prevents the troublesome formation of bubbles during the gumming process. A small addition of pure fish-glue (isinglass) will also prevent the strong tendency to curl, but it must not be added at once to large quantities of mucilage, as it is likely to cause the spoiling of the latter, but should be mixed with only as much as will be used in one day. The gummed sheets should not be dried in an overheated place, as this promotes curling. The adhesive should be applied evenly, whether by hand or by machine, so that no more gum is left on the edges than in the center.

To prevent the curling of the edges of the coated or gummed paper, it is advisable, before gumming or coating, to moisten the back of the edges for a suitable width. This may be accomplished with the aid of a sponge, or a felt roller applied by a suitable device to the roll of paper, or attached to the gumming cylinder. If moistening with water does not suffice, glycerin may be added to the moistening water in the proportion of 1 oz. by weight of glycerin to the quart of water. It is possible to change the proportion used according to the curling of the paper. By this means good results are said to have been obtained.

The United States is said to have practically no commerce in paper with Chile. Print paper is supplied by Norway and Germany and the finer papers by Germany alone. Digitized by GOOGIC

Some Paper Troubles of the Printer

Changes in Printers' and Lithographers' Inks Caused by Chemical Residues in the Paper



RINTERS occasionally experience troubles with paper consequent upon the retention therein of residues from certain of the chemical processes which the material undergoes in its transition to the finished stage. Lithographers are the chief complainants, for their methods of production are based on chemical interaction,

whilst they use color inks which in many cases are subject to reaction under certain conditions. Unfortunately, the printer is far too ready to shelve the blame for much of his own faulty workmanship upon the papermaker. One thing is certain, and intellectual printers realize it, that better and cheaper printing paper is now turned out than ever before. At the same time it is probably true that cheaper and much worse paper may now be procured than hitherto. The buyer himself, if he knows anything at all about the commodity he buys, must be aware that the price he pays governs the quality of the product. If he wilfully purchases paper at a price inconsistent with quality and character, he lays up immediately a store of trouble for the printer. We restrict ourselves mainly to lithographic papers in these comments, the letterpress printer experiences little or no difficulty with any grade of stock.

There are certain defects in paper which make themselves known immediately the job commences running on the lithographic machine, such as fluff, lint or loose fiber and loading, uneven cutting, variation in finish, weak or soluble coating, creasing, cockling, etc. For these and like defects, the papermaker is certainly to blame and generally receives it. So far as chromolithography is concerned the paper may be seriously defective in a manner which does not exert its influence until the printing has been completed. Or again, the development of the trouble may be so gradual, yet occur during the printing, that the lithographer fails to perceive the effect until too late. Cases of this description happen more often than is generally thought and are mainly due to chemical residues in the paper reacting with affinities in the ink. A consideration of the factors on either side may thus prove profitable to both papermakers and lithographers.

In lithography, an extensive range of different classes of paper are called into use, including, in addition to ordinary chromos, enamels, lithos and S.C.s, such grades as greaseproof, vegetable parchment, flints, surfaced coloreds, cheque papers, pasteboards, etc. The papermaker will undoubtedly admit the probability of certain of these varieties containing residual chemicals, in however slight a degree, from the special treatment which several of them necessarily undergo.

Chief among the offending residues may be mentioned alkalis, acids, sulphur, sulphides or sulphur combinations, traces of antichlor, iron or lead impurities, organic residues from mechanical wood. On the printing ink side we have sulphur, lead and iron compounds, chrome, alum, and mercuric bodies, while the surface from which the printed impression is received may be either carbonate of lime and magnesia, zinc, aluminum or india rubber.

As a general rule, printing paper, and especially litho stock, is turned out in a neutral state—that is, free from any trace of either free acid or alkali. Considering that

fibrous papermaking material is at first subjected to a somewhat severe alkaline treatment and later encounters acids in one form or another, it is possible that occasionally makings of papers are not entirely free from chemical residue. Perhaps the most common, and certainly the most injurious form of residue, is sulphuric acid. This may be introduced into the paper in various ways. If the bleaching is hastened by means of dilute H₂SO₄, inefficient washing or badly calculated proportion of antichlor results in free acid in the finished stock. Again, the precipitation of resin is effected by addition of aluminum sulphate. The resinate may have a tendency to set free traces of sulphuric acid from the sulphate, which would then find their way through to the finished product. Greaseproof papers are sometimes parchmentized with sulphuric acids, traces of which may remain unless accurate neutralization is effected. Another source of free acid is blanc fixe, used as loading and for coating mixtures. Being artificially prepared by treating a solution of barium chloride with H₂SO₄ or Al₂ (SO₄)₈, there is a danger of free acid remaining as the result of inefficient washing of the precipitate. The most simple test for free acid in the paper is to make up a solution of Congo red in water, a drop of which applied to the paper will turn blue in the presence of free acid. Alum has a tendency to react as an acid, and if present in excess, as it may easily be, in the case of coated papers particularly, may be regarded in exactly the same light as free sulphuric acid. Alum is added to the sizing for tubsized papers, while it is also a common constituent of the coating solution for chromo and bright enamel stock. It must be remarked, however, that alum does not test acid to Congo red, but it reddens litmus paper or solution.

Another test for free acid may be mentioned, which can be used quantitatively. Strips of the paper to known weight are extracted in warm water. The extract is then titrated in the usual manner with decinormal potassium hydroxide, in the presence of phenolphthalein as indicator. The phenolphthalein is itslef colorless, but with alkali it changes to an intense red, while it assumes its former state of colorlessness on adding acid in excess. From the number of Cc. of potassium hydroxide required, the amount of free acid may be calculated.

The effect which free acid in the paper has upon chromolithography is serious in the case of certain pigments, but the first reaction is probably upon the printing surface. The basis of lithography is the separation of the printing surface into two areas, the one which is required to create an ink impression being prepared to be sensitive to greasy compounds, hence water-repellant, while the nonprinting area must refuse grease and receive and retain moisture, i.e., a film of water. The effect of acid upon this is to attack both areas, creating a scum upon the nonprinting area and eating away the edges of the printable area. Much trouble and inconvenience may thereby be occasioned for the lithographer. In the case of coated papers carrying a little acid augmented by a badly-fixed clay surface, the powder detaches and fills the pores of the printing stone or plate, with disastrous results to the work.

Coming now to the pigments, ultramarine is partly

bleached in the presence of acid, the effect becoming visible only after the printing has been completed. Pure blue (from green and caustic soda) is affected in like manner, while many of the cheaper aniline colors, which are largely introduced into poor inks, would rapidly deteriorate in the presence of free acid. The same reasoning applies to certain of the lake compounds.

Cases have occurred in which chromo prints executed with vegetable or organic coloring materials have greatly degenerated in color value, although apparently both the paper and the inks were quite reliable. The basis of such trouble is usually the presence on the paper of residues from the bleaching process. The active agent in the whitening of the pulp is chlorine in a free state. It is but rarely that the lithographer has to deal with paper containing traces of chlorine, although it is quite possible that evidence of it may be detected in a paper direct from the machine. Chlorine is so sensitive to reaction that it either immediately escapes from the paper on exposure, or else combines speedily with bases in the paper to form such salts as sodium or aluminum chloride. If, however, there is some suspicion of a bleaching agent in the finished paper, it makes itself visible by weakening the color of the print or creating a piebald appearance. Free chlorine is usually tested for in the following manner: A portion of the paper is extracted with cold water in a test tube and to the extract is added a solution of potassium iodide and a little starch liquor. In the presence of free chlorine a blue coloration is produced. Residues of bleaching powder and traces of hypochlorites are capable of exerting a most disastrous influence upon chromolithographic work. They also have a decided tendency to rot the paper and cause it to go black in color.

Iron spots or compounds in the paper may be produced during manufacture in various ways. Scraps and particles often become detached from the knives and bars of the breaking engine, beaters and refiners, which, however, may be composed of alternative composite metals, as brass, copper, phosphor-bronze, etc. Iron and other metallic impurities, also result from rusty stuff chests, waterpipes and tanks, sand catchers and strainers. Moreover, the water supplied to the mill may be rich in iron salts—a grave fault. Again, the poorest grades of aluminum sulphate contain sufficient iron to injure a good class of printing paper.

iron to injure a good class of printing paper.

The spots and stains are usually developed and intensified during the drying, particularly if the web comes up damp and meets too sudden a high degree of heat. It is quite possible, however, that the paper may come to the lithographer apparently pure. The trouble is then encountered when a development of dark spots, black, chocolate, buff or bright in color with certain pigments set in. These spots develop in color during the drying of the pigment on the paper and intensify progressively. Such pigments as Naples yellow, Chinese yellow, carmine, scarlet lake, orange, mountain blue, etc., react with iron and are therefore certain to create trouble if iron is present in the paper. Again, such mercuric iodide pigments as geranium red and scarlet iodide (pure scarlet) would speedily be affected by traces of iron. When chemical reaction with the pigment sets in, the disfigurement of the sheet is intensified and becomes most obvious. Apart from its presence in this form, iron may also be present in the paper as a compound with resinous and fatty matter or in combination in excess with the clay added to the beater. The result of its introduction in this form would be the development of a dirty yellow tinge in the stock.

A test for iron in paper may appropriately be added. Digest thoroughly a portion of the suspected paper with a solution of hydrochloric acid to which has been added a drop or two of nitric acid. After complete extraction of any possible iron a little potassium ferrocyanide solution is added to the extract, which turns to a blue shade corresponding in intensity to the amount of mineral present in the paper.

Amongst the most damaging forms of impurity to be found in paper for lithography is sulphur, in the form of sulphite. It is principally to be found in the cheaper grades of paper containing poor sulphite pulp. Sulphur residues result from inefficient cleansing of the pulp from the bisulphite boiling liquors. Other ways by which sulphur compounds are carried forward into the finished paper may be mentioned, for instance, excesses of bleach liquor are in many mills neutralized by means of antichlor. Sodium thiosulphate usually forms the antichlor, and if used in excess there is a tendency for precipitations of sulphur to remain upon the fibre. It is also possible that the water used at some stage in the making of the paper may have become contaminated by sulphuretted hydrogen from decomposed organic matter. The influence of H₂S upon lead compounds is well known, and as many of the lithographer's pigments contain lead it is most disastrous to encounter paper with traces of sulphuretted hydrogen.

Cases have occured in which traces of sulphur compounds have been introduced to the paper through the coloring matter employed for dyeing. Ultramarine contains sulphur as a component part, usually so bound up that it cannot act separately. Extremely poor grades of the color, however, have often a small proportion of uncombined sulphur which might easily find its way into paper dyed with the color.

The chief effect of sulphur compounds in paper is to blacken the pigments which contain lead or copper, while they have a deleterious influence upon many of the aniline coloring matters from which are produced a considerable number of cheap printing inks. The lithographer's colors affected by sulphides or sulphur residues, are: Naples, Chinese, chrome and patent yellows, verditer, mountain and intense blues and orange chrome. Bronze powders, which contain a large amount of copper in their composition are rapidly blackened when in contact with reactive sulphur bodies; hence, the paper which is sold for interleaving bronzed work should be free from traces of sulphite liquors.

Sulphides in paper may be detected by the characteristic smell of rotten eggs which is created when a portion of the stock is gently warmed in a test tube with weak sulphuric acid. Another test is to bring a piece of filter paper soaked in silver nitrate over the mouth of the tube containing the suspected paper in sulphuric acid. If sulphide is present in the stock a metallic deposit will be formed on the filter paper. Soluble sulphides and sulphites may be detected and quantitatively determined by the usual method of cold water extraction and titration with decinormal iodine solution.

Alum in coated paper occasions much trouble to the lithographic printer. We have already remarked upon alum and its acid-like reaction upon pigments; but when present in excess in the coating mixture applied to the body paper for chromos and enamels, it has an even more serious reaction upon the stone from which the impression is printed.

Alumina constitutes about 40 per cent of kaolin or china clay, while alum itself is frequently added to the glue as a preservative, although formaldehyde is preferable. The presence of excess of alum to free alumina in the coating is rapidly asserted while the paper is being printed, particularly if the coating film is at all loosely

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PAPER

A Weekly Illustrated Journal of Information on the Manufacture, Uses and Sale of Pulp and Paper

\$5 A YEAR IN ADVANCE

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Development in Canada

7HEN the McCall bill was pending before Congress it will be remembered that practically every man who appeared before either the Ways and Means Committee of the House or the Finance Committee of the Senate in opposition to Section 2 expressed the opinion that its adoption could not fail to eliminate the growth of the Canadian paper industry and at the same time correspondingly depress the American.

Little heed, however, was paid to the statement. Congress, indeed, is so accustomed to hear the prediction of calamity from those who do not approve of its actions, that the cry of warning has lost its horror. We were, therefore, told to calm our fears, and assured that our misgivings were unfounded.

In the face of this experience it is interesting to look back over the recent months and see what they have brought forth.

Everything that has transpired in this country and Canada in connection with the paper industry since reciprocity, so called, was first seriously advocated, has demonstrated that the predictions uttered at Washington were not the ill-considered warnings of the alarmist.

The effect on the American side was immediate and constantly increasing discouragement. Not only has the industry planned no extensive developments, but some that were contemplated, and some under way, were either abandoned or indefinitely postponed. Little, indeed, has been done in the last twelve months except to complete work that was already under contract and far advanced, or to make such changes in existing S. F.

plants or such addition thereto as were in the interest of their more efficient operation.

Now see what has happened on the other side of the The industry in Canada has experienced an unprecedented growth, and is at this very time planning still greater things. Verily, the prediction that Section 2 would eventually result to a great extent in driving the paper industry out of American in to Canada is coming to pass.

The Pulp and Paper Magazine of Canada, under date of January 1, contains a very interesting editorial on "The Year Among the Mills," which illustrates the feeling of buoyancy on the part of the Canadian, and also sets forth some very good reasons for its indulgence.

The initial paragraph of the editorial says:

We now look on pulp and paper as one of Canada's largest natural industries, and expect our country soon to attract world-wide attention as the woodpulp country of the world. It afforded the editor untold pleasure in visiting the Canadian mills during the past two months, to note the strong tone of optimism for the future, and to find everyone connected with the industry, in all capacities, planning enlargements, improvements or new developments. It is this spirit which makes the industry so unique today.

The article mentioned then proceeds to enumerate some of the developments now under way; the largest single development noted being that of Price Brothers and Company, whose enlarged operations we have heretofore referred to.

The Chicoutimi Pulp Company has remodeled its No. 2 ground wood mill, increasing its total capacity to 300 tons daily.

Work has already begun on the buildings and dam of the Donnacona Paper Company, one of the latest undertakings, which is backed by American capital and is located on the Jacques Cartier river, fifty miles from Quebec. This mill contemplates 100 tons daily production.

At Three Rivers, the Wyagamack Company comes on the market with 50 tons of kraft; at Shawinigan Falls, the Belgo-Canadian Company is making extensive improvements; at Laurentide important enlargements are under way; the Quebec and St. Maurice Industrial Company is pushing its new kraft mill to completion, a third coating machine is being installed by the National Paper Company; while the Rolland Paper Company is completely rebuilding its St. Adele plant.

In the Ottawa valley, the Riordon Pulp & Paper Company has made extensive additions to its sulphite mills at Hawkesburg, thereby increasing its production from 90 to 135 tons; the E. B. Eddy Company is constructing a new ground wood mill at Ottawa; and the Booth mills have made changes which materially increase production.

So we might go on almost indefinitely reciting constructions and enlargements being actually made, to say nothing of the many extensive prospective enter-Digitized by GOOGLE

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Arrangements for the A. P. and P. A. Meeting

The following notice of the annual meeting and banquet of the American Paper and Pulp Association has been sent out to the members by President Hastings:

The annual meeting of the association takes place on Thursday, February 20, 1913, at 10 a.m., in the "Myrtle Room" of the Waldorf-Astoria hotel, at which time reports will be made by the vice presidents of the different divisions, papers will be read, resolutions adopted, and officers elected for the ensuing year. I trust there will be a full attendance at this meeting as suggestions will be welcomed, and an interest in the association can best be shown by an open discussion of matters of interest to the manufacturers. Addresses will be made by several gentlemen on different subjects of interest.

As each division has business pertaining to its individual branch, meetings of these divisions will be held in different apartments according to the subjoined announcement, beginning Tuesday, October 18, when three divisions will hold their meetings, and on Wednesday the 19, the others. All of these rooms are on the first floor in the east end of the Waldorf-Astoria

These meetings are becoming of more interest from year to year, and I trust you will show an interest in the forthcoming meeting by your presence and participation in the proceedings. It is very desirable that any changes in Trade Customs should be decided upon by the different divisions and be reported to the

general meeting for ratification on Thursday, February 20.

DIVISION MEETINGS

The time and place of the division meetings referred to in the foregoing announcement are as follows:

Tuesday, February 18, 1913

Board division: Assembly room, (No. 122), 10 A.M.; Charles

Writing Paper division: State apartment, (1st floor, southeast corner), 1:30 p.m.; W. D. Judd, vice president.

Cover Paper division: State apartment (1st floor, southeast corner), 4 p.m.; C. A. Hubbard, secretary.

Wednesday, February 19, 1913

Wrapping division: East room, 10 A.M.; H. W. Stokes, vice

Book division: East room, 2 P.M.; A. L. Pratt, vice president. Tissue division: Room 107, 10 A.M.; E. R. Redhead, vice

president. Coated Paper division: East room, 4 P.M.; Martin Cantine,

vice president.

Coated Board division: Room 107, 1 P.M.; B. C. Hill, vice

president. Specialties division: Room 107, 4 P.M.; S. A. Upham, vice

president. Chemical Pulp division: Room 151, 10 A.M.; Thomas Hunter,

vice president.

News and Ground Wood division: Myrtle room, 2 P.M.;

H. J. Brown and J. G. Rosebush, vice presidents.

New Bids Asked for by Committee on Printing

[SPECIAL TO PAPER]

Washington, Jan. 27—New proposals for paper for the Public Printer were sent out last week. These are to cover the rejections at the previous bidding, noted in Paper for January 22. The approximate estimated quantities set forth in detail in the new schedule comprise: 5,000 pounds colored newsprint paper; 30,000 pounds colored tablet writing paper; 7,500 pounds writing paper, machine dried; 2,170,000 pounds writing paper, air and loft dried; 5,000 pounds fine white writing paper, loft dried; 1,200 pounds typewriter paper; 35,000 pounds bond paper; 1,000 pounds railroad manila paper, ruled; 1,500 pounds noncurling gummed paper; 5,000 pounds offset paper; 9,000 pounds lining and stripping paper; 150,000 pounds manila board; 5,000 pounds pressboard; 108,000 pounds straeboard; 100,000 pounds straw chip board.

Bids on the new proposals will be received until February 10.

Col. Jones of "Paper Trade Journal" Dead

Col. Charles H. Jones, proprietor of the Paper Trade Journal, died in a sanatorium in Italy on Sunday, January 26. He suffered a paralytic stroke fourteen years ago and since then had been an invalid. He was born at Talbotton, Ga., March 7, 1848. He served in the Confederate army under Gen. Joe Johnson, and came to New York in 1865. He was editor of the Eclectic Magazine and of Appleton's Journal for a time. In 1881 he went to Jacksonville, Fla., and established the Times-Union. In 1888 he took charge of the Missouri Republican, now the St. Louis Republican. He was chairman of the St. Louis World's Fair executive committee. He left St. Louis to become managing editor of the World, but at the end of a year went back there to become editor and general manager of the Post-Despatch, owned by Mr. Pulitzer. In 1896 he resigned because of his health and purchased the Paper Trade Journal, the American Stationer and Lockwood's Directory.

During the last ten years of his life, Col. Jones spent all of his time in Europe, mostly in France, in an effort to get back his health. As a last resort, he went to the sanatorium at Ospeda-

his health. As a last resort, he went to the sanatorium at Ospeda-

letti, where he died.

Plight of the Howland Pulp Company

The brief despatch reporting the terrible accident at the Howland Falls Pulp & Paper Company's plant, at Howland, Me., which appeared in the preceding issue of PAPER, has been supplemented by details received too late for publication last Wednes-

The extent of the disaster was greater than at first supposed and it now appears that the firm will be out of the market for several months to come. While the loss to the company is very great, most sorrow naturally is felt for the families of those who

lost their lives in the explosion.

In a note from the company dated Thursday, January 23, the

following information is given:

following information is given:

"The accident at our mill completely demolished our entire steam plant, consequently we are unable to manufacture any sulphite or paper until such time as we may be able to get power from a new plant. This probably means about three months before we shall again manufacture paper."

The Bangor correspondent of Paper describes the explosion

as follows:

Without an instant's warning and from some cause that has "Without an instant's warning and from some cause that has not been ascertained, the boiler house, situated a few feet from the mill proper, blew up. The boiler house contained seven boilers, five of them being of the horizontal type and two upright. Each carried 300 pounds steam pressure. Stephen Toole and Clifford Wallace, firemen, were the men killed. Toole was buried alive under a mass of debris in front of one of the boilers. He was extricated, but died almost immediately from his burns. Wallace was blown across the boiler room, falling against the side of the digester room. He died within a few hours. John McClusky, the head fireman, was blown for many yards and hadly McClusky, the head fireman, was blown for many yards and badly

injured.

"Ralph Chamberlain, a teamster, was oiling his wagon outside the boiler house when the explosion occurred, and was pinned to the ground by the debris, but was not seriously injured. The boiler house was completely demolished and the company esti-mates its loss from this source at some \$20,000."

Pulp Shipments Delayed by Storms

All incoming steamships report unusually heavy storms encountered crossing the Atlantic and every freight boat has been delayed, with a consequent interruption in deliveries of pulp. delayed, with a consequent interruption in deliveries of pulp. The Parsons Trading Company cites an instance where a steamer due in Boston December 24, 1912 has been laid up in the Azores by stress of weather and will not arrive until sometime in February. Another boat, the Abessinia, was disabled and put in at Halifax, and is now there for repairs.

Still another case was the steamship Texas, which grounded off Christiansand. The cargo was taken off and transferred to the Ferndene, and this boat which had to put in at Leith, is carrying 10,600 bales of woodpulp for the Parsons Trading Company.

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Proposed Canal Construction in N. Y. State

[SPECIAL TO PAPER]

WATERTOWN, Jan. 27—Sometime the latter part of this week it is expected that Assemblyman John G. Jones, of Carthage, will introduce into the assembly a referendum bill asking for an appropriation of \$40,000,000, of which \$17,500,000 is to be used for the construction of a canal from Carthage through Watertown to Lake Ontario; \$15,000,000 for the construction of the Flushing River-Jamaica Bay canal and \$7,500,000 for the rehabilitation of the Chemung canal and the Glens Falls feeder. In the senate the bill will be offered by some Democratic senator. Former Senator George H. Cobb. of this city, was a member

In the senate the bill will be offered by some Democratic senator. Former Senator George H. Cobb, of this city, was a member of the committee appointed by the executive committee of the New York State Waterways Association to make a rough draft of the bill and a meeting was held at Albany last week for that purpose, it being attended by George Clinton, of Buffalo, chairman of the committee; John D. Kernan, of Utica; George H. Cobb, of this city; Frederick Cameron, of Albany; N. B. Killer, of Brooklyn, and Senator Hill, of Buffalo. The bill slamber wastly the same with the avention of the item for the Flushing. exactly the same, with the exception of the item for the Flushing-Jamaica Bay canal, as the one introduced last year by Assemblyman Jones, asking for an appropriation of \$25,000,000 for the Carthage to the lake canal and the Chemung canal and Glens Falls feeder, which passed both houses but was stopped by the governor, who failed to sign it. After the rough draft of the present bill was made by the committee it was turned over to George Clinton, the chairman of the committee, for completion and refinement, and it is expected that a conference will be held between the committee and Governor Sulzer before the bill is introduced into the state legislature.

Senator Cobb believes that the proposition, which embodies the entire four canal plans of the state at the present time, will meet with the approval of the people from all sections of the state and that it will not only be carried through the legislature, but will be voted upon favorably by the people.

BLACK RIVER.

Improvements at the Talc Mines

[SPECIAL TO PAPER]

WATERTOWN, Jan. 27—The International Pulp Company, operating tale mines and mills at Taleville, has just received a new hoister, which is the largest of its kind in this section, having a six foot drum. A wire cable several hundred feet in length will run from the hoister across the river, the highway and the rail-road tracks down into the mine about 900 feet. The building of run from the holsest across the road tracks down into the mine about 900 feet. The building of the new flume for the new power plant has been completed and the water let in and the building is ready for the installation of the machinery, which will be set this spring. Changes are also being made in the pipe line, which runs from the main to Mine No. 2½, it having been decided to be in a six inch pipe instead of a smaller one, as was first intended. The company is operating its mill at Fullerville to the utmost capacity, turning out thirty tons of finished product every twenty-four hours. The thirty tons of finished product every twenty-four hours. The plant of the Ontario Talc Company, near Gouverneur, is also being run to the limit and the talc business generally is reported

on Wednesday a portion of the flume of the Ontario Tale Company, at Emeryville, was washed out by the high water and it was necessafy to close the plant for a few days, while

repairs were made.

BLACK RIVER.

Water Commissioner for 27th Time

[SPECIAL TO PAPER]

WATERTOWN, Jan. 27—John C. Knowlton, of the Knowlton Brothers Paper Company, of this city, was on January 13 elected president of the city Board of Water Commissioners for the twenty-seventh time, he having completed twenty-six years of service at the time that the last election took place.

Mr. Knowlton was first appointed on the Board of Water Commissioners in 1873 and served thirteen years as commissioner

before being elected president, so that altogether he has been on the board forty consecutive years. During that time the city water system has been developed and reorganized until now it is one of the best in the state for a city of this size, and the water rate charged is lower than in almost any other city of the size in the country. During the past ten years two new reservoirs of concrete, a filtration plant, two concrete dams and other improvements have been made, the latter two being the first step towards a development of the city water power on Black river, which will result in a municipal lighting and power plant to use up the surplus power.

BLACK RIVER.

. Another Waterpower to its String

[SPECIAL TO PAPER]

WATERTOWN, Jan. 27—John B. Taylor, of this city, owner of the Watertown Light & Power Company, has just added another waterpower to the string which he has been purchasing in this section during the past few months. The new power is the Cotton Rapids site on the Oswegatchie river, near South Edwards, where a few months ago he purchased the Ball power of the Carthage Tissue Paper Company, and in the same section is another power purchased a few months ago.

The Cotton Rapids power purchased from Woodcock Brothers,

will develop about 3,000 horsepower, but at the present time it is undeveloped. Mr. Taylor proposes to start work in the spring is undeveloped. Mr. Taylor proposes to start work in the spring with the construction of a concrete dam, which will be 350 feet across the crest and about 150 feet across the bed of the river. From this dam a short pentstock will lead to the site of the proposed concrete power station, in which will be located the equipment for generating the electricity, much of which will be sold to the Northern Ore Company and other conerns in the vicinity of South Edwards. Some weeks ago a corps of engineers surveyed a route for a power line to connect Carthage with the local transmission line at Black River.

Another transmission line from Carthage to South Edwards is

Another transmission line from Carthage to South Edwards is nearly completed, and will connect up the Ball and Belfort powers and ultimately the Cotton Rapids power. When this is finished the company will have a fifty mile line leading from this

city:

The proposed development will cost about \$100,000, and will not all be done this year, though it is expected that the dam will be finished. Because of the fact that the Oswegatchie river is augmented during the dry season by Cranberry Lake, which acts as a storage reservoir, this is one of the best power streams in this part of the state, having the most uniform flow of any. BLACK RIVER.

Status of the Proposed Pulpwood Terminal

[SPECIAL TO PAPER]

WATERTOWN, Jan. 27-It is reported that the pulpwood supply company and pulpwood terminal proposition for Ogdensburg is progressing satisfactorily and that undoubtedly a company will soon be organized. Those interested in the plant say it will cost about \$50,000 to fit and equip a proper terminal at Ogdensburg on the banks of the St. Lawrence river, near the railroad burg on the banks of the St. Lawrence river, near the railroad tracks, where it will be easy to tranship the wood by rail, which is received by water from Canada. The prime movers in the project are the officers of the De Grasse Paper Company, which would be the most benefited, inasmuch as the organization of such a company by Ogdensburg business men would save the paper company the trouble and expense of financing such a proposition and would afford the necessary relief, assuring a supply of pulpwood the year around. A conference was held in Ogdensburg last week, attended by F. A. Augsbury and other members of the De Grasse Paper Company, George E. Van Kennen, Mayor Hoard, George Hall, Thomas Spratt, G. F. Darrow, E. L. Strong, J. C. Howard and S. L. Dawley.

Black River.

Contesting the Remington Will

[SPECIAL TO PAPER]

WATERTOWN, Jan. 27—Arrangements were made Saturday with Justice Edgar C. Emerson, of this city, for the submission of the suit brought by the executors of the late A. D. Remington, one of the pioneer paper manufacturers of this section, for a construction of his will under the terms of which he left \$200,000 for the construction of a technical school in Watertown.

The present executors are G. R. Remington, of the Remington Group of mills, a brother of the late A. D. Remington, and Nelson R. Caswell, of the Aldrich Paper Company, a nephew. The late C. H. Remington was also one of the executors. It is asserted that the action was brought in order to decide certain the mill but one of the atternational interested in the mill. asserted that the action was brought in order to decide certain points in the will, but one of the attorneys interested in the case insists that the real purpose is to set aside the will and institute provision and declare the property to be divided among the heirs, among whom are Mrs. Frank A. Summerville, Mrs. Abbie C. Remington, C. R. Remington, and others. The case was heard by the late Justice Watson M. Rogers, who died leaving it undecided. The minutes containing all of the evidence and briefs will be submitted February 15 the date of submission of briefs will be submitted February 15, the date of submission of the case. Digitized by BLACK RIVER.

Westinghouse Adjustable Speed Paper-Machine Drive



Washingtonian Pigura Martinia Minira 114 by reciptor in cases duch figural regulations, 50 to 500 B F M to contract on the conductor cases.

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Maximum Production

I al a commence as a success

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.



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The talk and the transfer of

The Aschallenburg Company

Daily production 330 time dry weight Highest grades of blenched and unblesched sulphites.

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Apprehensive About Pulpwood Harvest

[SPECIAL TO PAPER]

APPLETON, Wis., Jan. 27—The mildness of the present winter is causing some anxiety regarding the pulpwood harvest. There has been so little snow and cold weather that it has been possible to get out very little pulpwood, and in some localities logging has been abandoned altogether. Usually by the middle of January the receipts of wood at the mill yards are coming in rapidly, but this year there is very little doing. There is time for plenty of snow and some cold weather yet, but every passing day reduces it and makes the situation more critical.

George Witham, Jr., of Hudson Falls, N. Y., has been in the Fox river valley recently. He has been describing and illustrating to manufacturers a new invention in the form of an automatic attachment for regulating the drying of paper on the machine. It is asserted for this attachment that it controls the steam in such a way as automatically to maintain any desired proportion

of moisture in the paper.

The Nathan Paper Co., wholesalers, of Oshkosh, Wis., filed a petition in bankruptcy last week. Liabilities are about \$5,000. One of the rag room girls at the mill of the Outagamie Paper Co., Kaukauna, found \$40 in bank bills sewed up in the pocket of a pair of overalls, one day last week.

The stage of water in the Fox river and other rivers generally throughout the Wisconsin manufacturing districts, continues just about ideal for power purposes. Rarely, if ever, has water power been so good through a winter. This is in spite of the fact that precipitation during the last few months has been below the normal. Water in the Fox river is so well maintained that it looks as though sluicing might be necessary in March in order to make room in Lake Winnebago for the spring freshet.

Intoxication Not Wilful Misconduct?

[SPECIAL TO PAPER]

GREEN BAY, Wis., Jan. 27—A ruling was made last week by the Wisconsin Industrial Commission that intoxication does not constitute wilful misconduct on the part of an employee within the meaning of the workman's compensation law. The commission decided that Millie Smith, widow of Patrick Smith, an employee of the Nekoosa-Edwards Paper Company, of Grand Rapids, is entitled to the sum of \$2,040, to be paid in weekly installments. The commission states in its decision that Smith was intoxicated and it found that but for his intoxicated condition the accident which caused his death would not have happened.

It was fortunate for the widow of Smith that the company he worked for had come within the provisions of the workman's compensation act, or she probably would be without the money the commission decided she is entitled to for his death. The courts probably would rule against her in a damage suit.

A complaint comes from Menominee, Mich., that the water in the Menominee river is considerably below the average stage and is seriously handicapping the paper mill and other manufacturing plants that use water power. The paper mill has been turning out only two-thirds of its normal output on account of the shortage of water, and would have to close if electric power was not in the plant.

was not in the plant.

Iver Terp, secretary of the Northern Paper Mills of this city, has been appointed as a member of the reception committee for the banquet to be given by the American Paper and Pulp Asso-

ciation in New York City.

Perry Wagner, who has been employed in the Northern Paper Mills on a machine for about a year, has taken up new duties as a traveling salesman for that company. He has been getting acquainted with the selling end of the game and recently made his first trip into the Chicago market. His father, W. P. Wagner, is president of the company.

Waldo-Joslin

APPLETON, Wis., Jan. 27—A very happy event last Tuesday evening at Rhinelander, was the marriage of Winnifred, daughter of Mr. and Mrs. W. D. Joslin, to Mr. Guy Waldo, manager of the Flambeau Paper Co., Park Falls, Wis. Following the ceremony, Mr. and Mrs. Waldo left for the east, where they will spend a couple of weeks before returning to Park Falls, where their future home will be made. Mr. Waldo is well known throughout the industry, and very many friends will be disposed to fecilitate him upon his happiness.

It is reported that the Lindsay Wire Weaving Co., manufacturers of wire cloth, washer wires, etc., Cleveland, O., has recently put in operation a loom of the largest width, capable of making fourdrinier wires 216 inches wide. This is probably the largest loom in existence for the manufacture of fourdrinier wires.

Development of Waterpowers in the West

[SPECIAL TO PAPER]

APPLETON, Wis., Jan. 27—The Wisconsin legislature now in session has not yet formulated its expected waterpower bill, to take the place of the law passed two years ago which was subsequently declared unconstitutional. However, a joint resolution was introduced in the senate last week, providing for a constitutional amendment by which the state may appropriate money to buy and develop waterpower sites and forest reserves. The stipulation is made that the appropriation shall be limited to two-tenths of a mill upon the value of taxable property. It may be stated in this connection that some of the northern counties of Wisconsin in which the state at present has large holdings of land for purposes of reforesting, are complaining bitterly against it and memorializing the legislature, on the ground that the state's ownership of so much untaxed land most unjustly increases the proportion of taxes that must be paid upon the privately-owned lands in such counties.

Promotion for Mr. Emerson

[SPECIAL TO PAPER]

MITTINEAGUE, Mass., Jan. 27—Edward Emerson, who for a number of years has been boss finisher in the No. 1 mill of the Agawam Paper Company, has been appointed superintendent of the mill, succeeding Thomas Stephenson, who recently resigned. Mr. Emerson is well known in paper circles, and his many friends were delighted to learn of his promotion. During the past week Mr. Emerson received congratulations from many sources. His association with the employees of the mill being of long duration will greatly aid him in his new work. Mr. Stephenson has not as yet decided where he will locate. It is possible that he may go west to superintend a mill.

STRATHMORE NEWS AND NOTES

Within a short time a new floor will be installed in the pasting room of the No. 2 mill of the Strathmore Paper Company. When this work is started the pasting machine will be shut down. If present plans are carried out the pasting machine in the new mill at Woronoco will be started before this work is attempted, and the work which has been done on the old pasting machine will be done at Woronoco for a time. The new mill at Woronoco is the subject of much discussion among Mittineague people, and it is expected that many changes will take place when it is put in operation. Although no definite date as to the starting of the mill has been given out, it is said that the machines will soon be in working order. Many papermakers and builders have viewed the structure in Woronoco and were much impressed with the plant.

PRESIDENT MOSES IN BURAL IMPROVEMENT WORK

Horace A. Moses, president and treasurer of the Strathmore Paper Company, which comprises four mills, three of which are in operation, the fourth being built at the present time, has been elected president of the Hampden County Improvement Association. A meeting of the association was held in the Cooley hotel, Springfield, Saturday, Jan. 25, with all the towns in Hampden county represented. It is the aim of the association to improve the rural districts. Mr. Moses has a summer home in Russell, Mass., and it is because of his holdings in that town and Woronoco that he is connected with the association.

B. A. Franklin, systematizer of the Strathmore Paper Company, gave an address at the Springfield Y. M. C. A. recently, taking for his subject "Cost Systems."

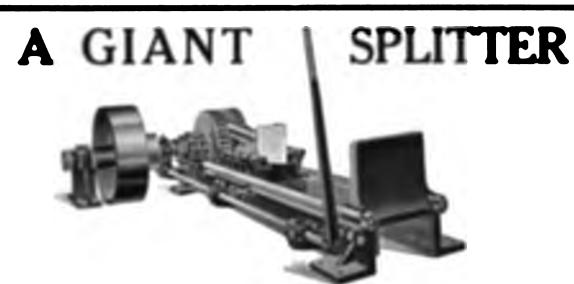
R. M. Bassett in Charge

R. M. Bassett, formerly in charge of the Cincinnati office of the Murphy Iron Works, manufacturers of the Murphy Automatic Smokeless Furnace, assumed the management of the Chicago office of the firm on January 1, 1913, and James H. McCabe, formerly connected with the engineering department, has taken over the management of the Cincinnati office.

The Cincinnati office, which was badly damaged by the Gibson House fire, has now been repaired, and the firm is again housed

in its old quarters, 603 Union Trust Building.

DAYTON, O., Jan. 27—James T. Mix, general sales manager of the Lake Superior Paper Company, is receiving the condolences of friends on account of the death of his mother, which occurred in Chicago on Monday, January 20, at the advanced age of 81.



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APPLETON MACHINE CO. APPLETON, WIS.

Hammermill Paper Company

Man Office CRIE PORA

HAMMERMILL

The Heller & Merz Co. Are fire 6.21.000 Private para Burn *** ** ** **

niline Colors

Parsons Trading Company

Paper and Pulp

IT BATTERY PLACE, NEW YORK

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Miami Valley Papermaking Items

SPECIAL TO PAPER

'AYTON, O., Jan. 27-Directors of the P. A. Sorg Paper Comy, of Middletown, held their annual election last week, the alt being as follows: President, Paul Arthur Sorg; vicesident, J. A. Aull; secretary and treasurer, Max T. Hartley; ditor, Herbert T. Kehew; general superintendent, A. F. Smith. iese are the same officers who were in charge last year, there ing no change effected. After the meeting, a splendid luncheon as enjoyed, in which the stockholders of the company partici-The officers constitute the directorate.

THE COAL SITUATION IN THE MIAMI VALLEY

The Champion Coated Paper Company has at present about 7,000 tons of coal on hand and is able to get an inexhaustible supply, according to the announcement made at the office of the big plant Thursday. About 300 tons a day are used at the plant and the supply now on the tracks will last for about a month. Owing to bad connections one part of the plant was compelled to close for about half an hour one day last week. It is stated that there is but little shortage of coal this year in the Miami Valley in comparison with that which usually prevails at this season of the year.

LAKE SUPERIOR'S WIDEST FOURDRINIER TO START

The Lake Superior Paper Company, at Sault Ste. Maric, Ontario, Canada, is planning to start on February 1, one of the widest papermaking machines in the world. It will be 198 inches wide, of the famous Pusey & Jones make. The Lake Superior Paper Company recently purchased what was then the widest papermaking machine in the world, but the last acquisition is still larger. This purchase was made necessary by the great demand made upon the company, the present salesmanager demand made upon the company, the present salesmanager, James T. Mix, who maintains his offices in the Reibold Building, this city, having sold more contracts than the papermaking plant with its former capacity could fulfill.

The annual meeting of the stockholders of the Mead Pulp and Paper Company, the plant of which is operated at Chillicothe. Ohio, was held Wednesday at the offices of the company's legal counsel, Attorney Charles A. Craighead, of this city. Besides the declaring of a semi-annual dividend of 6 per cent and business being done in connection with the plant, the old directors and officers were reelected as follows: President, George H. Mead; secretary, C. A. Craighead; treasurer, Arthur L. Rieger. The Mead company is now employing about 400 men, operating four machines, and making book paper at the rate of 125,000 pounds a day.

Storage Capacity of St. John River

[SPECIAL TO PAPER]

BANGOR, Me., Jan. 28-The International St. John River commission held a two days' session in this city. Wednesday and Thursday of last week, and much important testimony was heard from Hardy S. Ferguson, of New York, and S. J. Chapleau, of the department of Public Works, Dominion of Canada, the consulting engineers of the commission. A feature of the evidence of Mr. Ferguson was that the available storage on the St. John river, developed to 40 per cent of its capacity at high water mark, will furnish sufficient water in the river to ensure satisfactory log driving conditions, provided certain recom-mended improvements are made on the upper St. John. He also gave as his opinion that it is impossible to store any considerable amount of water in Chamberlain lake and its tributaries for the benefit of the St. John river, without the erection of a dam at the outlet of Telos lake to prevent the water from flowing into the Penobscot through the East Branch.

Mr. Ferguson said that he considered that the present storage capacity of Chamberlain lake and its tributaries at high water mark, constitute about half of the storage of the St. John above Fort Kent. The importance of this statement lies in the fact that one of the issues that the commission has to settle is whether Chamberlain lake belongs rightfully to the East Branch of the Penobscot as Maine interests claim, or whether it is tributary to the St. John, as is claimed by the Dominion interests.

It was developed at the hearing that there is opposition to the proposition of the St. John River Hydro-electric Co. for damming the river near Meductic, N. B., with the purpose of installing a plant for generating hydroelectric power. The claim is made that such is contrary to the Webster-Ashburton treaty in its provision that the St. John shall be free and open to navigation without obstruction for the use of both countries. The matter was taken obstruction for the use of both countries. The matter was taken up with the Federal Government which referred it back to the commission with power to render a decision. The objection is the St. John Log Driving Co., the Tobique Salmon of 6shermen along the river. The compression of the street of the same of the street of the same of the sam

Finland's Paper and Pulp Industry

Concluded from page 25

facturing, such as rotary, cutting and ruling machines, etc. For driving the new paper machine the engineering office, Zitting & Co., delivered a 200-hp. motor for the drying and other processes with a speed which can be regulated from 0 to maximum, answering to a paper speed of 180 metres a minute. Regulation according to the system Ward Leonard, with separate regulating generator, which provides the possibility of a good working degree with the highest as well as the lowest speed degree, and a very steady movement, is in vogue. and as a consequence of this an equally thick paper is the result. Further, three small motors from the same firm for driving the permanent part, the machines for rolling and re-rolling; both of the last-mentioned motors can be regulated according to the above-

mentioned system. The new paper machine is at work. At the Kyröfors Paper Mill, large reconstructions and new buildings are being erected. The cause of this is the required increase of power and a wish to concentrate the working of the several departments in a sole power station. Up till now this has been carried on by a number of turbines at different stations, but now there is, at a site below the fall, a new capacious ferroconcrete building under construction, in which the new machines are to be erected. They consist of four water turbines of a total of about 2,000 hp. Each of the three turbines is coupled with an electric generator. which it drives, and the fourth is coupled by transmission directly with the assistant engines in the wood-pulp mill. Room is further left for an aggregate of 800-hp. The water is led from the turbine sluice of the mill, through a metal plate pipe of 2,800 millimetres inner diameter to the turbines.

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INVESTIGATE THE

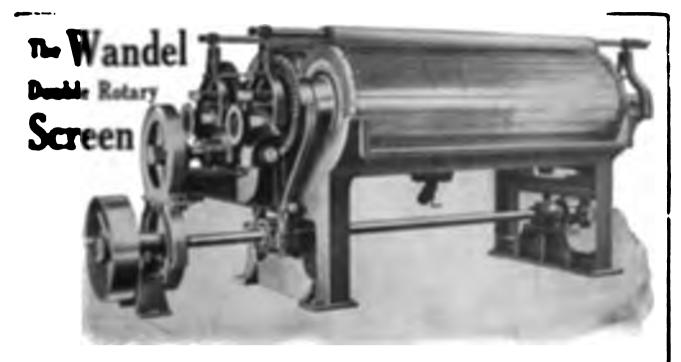
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WANDEL SCREEN MFG. CO. WALPOLE, MASS.

POURDRINIER PAPER MACHINE



The Sandy Hill Iron and Brass Works BUDGON FALLS, N. Y.

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New York, January 28, 1918.

MECHANICAL PULP

Conditions governing the market for ground wood have not changed to any appreciable extent during the past week, and the firmness of values appears well sustained under a heavy movement of supplies into consumption. Indications point to a gradual quickening in the demand and in some quarters higher prices are looked for, based on the strong statistical position of the primary markets. Bullish reports from European centers, based on a shortage of wood, serve to impart increased confidence to ground interests.

FOREIGN AND DOMESTIC PULP

Continued firmness is noted in the market for chemical fibers, in sympathy with the tenor of advices from abroad which note active inquiries and large withdrawals on existing contracts. In most instances bids cabled to the leading shippers abroad, on contracts, covering prompt and forward deliveries, have been turned down, being too low. Offerings of lines for shipments over the next six months have been limited as most shippers are well sold up on supplies. Arrivals at the port of New York for the week ended January 25, were fairly heavy and comprised supplies previously sold under contract for direct consumption.

Sulphite foreign-			
Bleached, ex dock . 2.80	@	3.25	
Unbl'h'd, ex dock .2.05	@	2.35	
Sulphite, domestic-			
Bleached 2.70	@	2.85	
Unbleached 2.15	@	2.30	
Soda, domestic-	195		
Bleached 2.25	@	2.35	

Soda, foreign— Unb'd Spruce, ex dock.........1.90 @ 2.15 Bleached, ex dock .2.85 @ 3.25 Imported Kraft pulp..........1.95 @ 2.10

BAGGING, ROPE ETC.

A steady to firm tone dominates the market, and bookings of new orders as well as withdrawals on unexpired contracts, have included fair-sized lines during the intervals. Offerings by cable from leading primary markets have been moderate and in most instances sellers decline to shade prices on prompt shipments, while forward deliveries at some points are maintained at slightly higher figures on a prospective improved demand and smaller stocks.

Gunny, No. 1— Domestic . 1.50 @ 1.60 Foreign . 1.50 @ 1.60 Light Burlap . 1.20 @ 1.30 Mixed Bagging . 85 @ .90 Sound Bagging . 95 @ 1.00	Wool Tares, heavy . 1.20 @ 1.25 Foreign Manila Rope 2.45 @ 2.60 Domestic Rope 2.45 @ 2.60 New Burlap Cut- tings 1.45 @ 1.65 Flax Waste, washed . 1.80 @ 2.85
Wool Tares, light 1.20 @ 1.30	and the same of th

IMPORTED RAGS

The feature in this department has been the steady increase in inquiries for cuttings in various positions which resulted in the acceptance of cable offerings at previous prices. In other descriptions, a fair business has been done since our last. Selfers in some instances have withdrawn offerings of some varieties, looking forward to a probable upward trend of values, based on a larger home demand and a further curtailment of supplies.

German Blue Cot- tons	5 1.7 5 1.8 5 2.0 5 2.2 6 2.7	0 Old Linen, Gray 2.75 @ German Colored Cot- tons 1.35 @ Medium Light Prints1.50 @ Old Linen Blues 2.37-@	1.45 1.60 4.50
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DOMESTIC RAGS

The situation of the market for rags remains strong, based on further favorable cable advices from the principal markets abroad, where an upward trend of values is noted. New business booked during the week, however, covered moderate lines at steady values. Holders are not urging sales, but in some instances values have been shaded on sizable lines. Cuttings and whites appear to be mostly wanted, but under small supplies of good selections, offerings are light and unimportant.

good selections, onerings are ugue and animportante.		
w Shirt Cuttings, 5.75 @ 6.20 Soiled Whites, street 1.55 Soiled Whites, house 2.25 Soiled Whites, house 2.25 Thirds and Blues . 1.75 Soiled Whites, house 2.25 Thirds and Blues . 1.75 Satinette Garments 1.00 w Blue Cottons . 3.25 @ 3.35 No. 1 Satinettes	-	1.75 2.30 1.85
ew Blue Cottons 3.25 @ 3.35 No. 1 Satinette Garma ew Blue Cottons 1.00 @ 1.10 No. 3 Satinettes	ents .1.00 95 85 ags45	ents .1.00 @ 95 @ 85 @ ags45 @

OLD PAPERS

Under a steady demand and fair deliveries on outstanding orders, prices of most old papers have been well maintained. Smaller stocks and increased sales of No. 1 soft white shavings have led to a hardening of views among dealers and quotations have been advanced to 1.80 cents and 1.90 cents, as to terms of sale. Magazine flat stock is held at higher figures, ranging from 90 cents to \$1.00 while No. 1 crumpled closed at 80 cents to 90 cents, showing a slight gain. No. 1 mixed paper eased off on increased offerings, due to a further accumulation of spot stocks and sellers are naming lower figures, ranging from 42½ cents to 45 cents as to/erms of sale.

No. 1 Hard White			Extra New Manila
Shavings2.45	0	2.60	Cuttings
No. 2 Hard White	7		New Manila Cuttings!
Shavings2.10	0	2.15	No. 1 Old Manila
No. 1 Soft White	ы		No. 2 Old Manila
Shavings1.80	0	1.90	New Box Board Chips
No. 1 Colored	м		Bogus and Mill
Shavings	0	.85	Wrappers
No. 2 Colored	~		Strictly Overissue
Shavings	0	.60	News
Magazine Flat Stock .90	œ.	1.00	Folded News
No. 1. Crumpled 80	0	.90	No. 1 Mixed News
Solid Ledger Stock 1.65			No. 1 Mixed Papurs.
Ledger Stock 1,40			Common Papers
No. 1 White News 1.25	0	1.30	The state of the s

TWINES

The feature of the market during the week under review, has been the decidedly firmer upward trend of prices on rope and B. C. hemp varieties, which culminated in established advances of 1 cent to 14 cents on manila rope and on jute wrappings, 2 to 6 ply. Nos. 1 and 2 to 12 cents and 11 cents respectively, while all grades of B. C. hemp show an appreciation of ½c. per pound. The strength of the market for rope and twines is based on the stronger and higher markets for the raw materials and a further slight improvement in the demand. Twines are meeting with an active inquiry and manufacturers, as a rule, are experiencing some difficulty in filling orders, being about sixty days behind in their deliveries on outstanding orders. Spot stocks of rope are fair while supplies of twines are small. Increased inquiries by jobbers are being largely stimulated by an active demand from retailers, due, it is intimated, to the improved facilities for sending out packages made possible by the parcel post.

Sisal Hay	@ 8 @ 15 @ 13 @ 8	B. C. Hemp, 24 17 1/2 B. C. Hemp, 36 17 B. Hemp, 18 19 B. Hemp, 24 18 1/2	888888888	10 9 19 18 18 18 20
Jute Twines, 18121/3 Jute Twines, 2412 Jute Twines, 36111/3	@ 13	B. Hemp, 24 18 B. Hemp, 36 18 Amer. Hemp, 4 1/4 & 6 13	999	19 19 14

CHEMICALS

Current quotations on papermaking chemicals are well sustained under a steady movement of supplies into consumption and moderate spot stocks. Inquiries for caustic soda have been Continued on page 38

Scandinavian-American
Trading Company
PRODUCE EXCHANGE BUILDING, NEW YORK
IMPORTERS AND EXPORTERS OF
FOREIGN AND DOMESTIC

WOODPULP

OF ALL KINDS

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HUBAND & NASH COMPANY, Menasha, Wis.

POSITIVE JORDAN ENGINE LININGS

Made of a case of IRON STEEL and MANGAMINE



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The Markets

Continued from page 36

fairly numerous and sellers in most quarters adhere to former figures of 1.60 cents and upward as to quantity but on desirable lots slight concessions have been made on firm bids covering invoices for immediate delivery. There has been a fair demand for bleaching powder. Sellers in most instances named 1.35 cents, but according to reports, orders at 1.30 cents have been booked—covering spot stocks for prompt shipment. The spot supply of desirable quality is small and with prospects for light arrivals in the near future, values have stiffened. Only a small volume of new orders for alum have been booked, but under a steady call for supplies on outstanding contracts and moderate spot stocks, prices ruled steady at 1% cents and upward and 2% cents and upward for ground and powdered, as upward and 2% cents and upward for ground and powdered, as to terms of sale, respectively. Business in brimstone has been confined to withdrawals on outstanding orders and new business booked in the interval, has been moderate, as is usual at this time of the year. Spot lots closed steady at \$22 and upward per ton, as to terms of sale. Scarcity of spot supplies of china clay, due to slow arrivals and deliveries by rail and by water have influenced a firmer market. Some holders are asking slightly higher values and offerings were light at 8.50 and upward and \$12 and upward for domestic and imported according to and \$12 and upward for domestic and imported, according to quality and quantity.

Imports—Rags and Paper Stock

AT NEW YORK

Week Ended January 25, 1913

Castle, Gottheil & Overton, Str. President Grant, Hamburg. 81 bs. rags

Castle, Gottheil & Overton, Str. Main, Bremen, 49 bs., 66 bs. rags. Marx Maier, Str. Sydletz, Bremen, 114 bs. old bagging.

Castle, Gottheil & Overton, by same, 317 bs. old bagging, 54 bs., 72 bs. 50 bs. rags.

Castle, Gottheil & Co., Str. Calabria, Leghorn, 46 bs. rags. Atterbury Bros., Str. Zanderdyk, Rotterdam, 179 bs. rags. E. Butterworth & Co., by same, 153 bs. old bagging.

Castle, Gottheil & Overton, by same, 317 bs. rags, 50 bs. old rope. Perkins, Goodwin & Co., by same, 47 bs. new rags, 96 bs. bag-

ging.

Salomon Bros. & Co., by same, 63 bs. sound bagging, 41 bs. mixed cuttings, 17 bs. dark cotton rags.

Felix Salomon & Co., by same, 71 bs. rags, 190 bs. bagging.

Jacobsen & Co., by same, 110 bs. old bright bagging.

Castle, Gottheil & Overton, Str. Principe di Piemonte, Genoa,

Castle, Gottheil & Overton, Str. Principe di Piemonte, Genoa, 156 bs. bagging.

Atterbury Bros., Str. Emanuel Accame, Marseilles, 196 bs. rags.

Castle, Gottheil & Overton, by same, 186 bs. rags.

A. Katzenstein, by same, 31 bs. old rope.

Marx Maier, Str. Caroline, Dunkirk, 412 bs. rags, 46 bs. new cuttings, 47 bs. bagging.

Castle, Gottheil & Overton, Str. Mexico, Havre, 160 bs. rags.

P. Garvan, Inc., by same, 655 bs. old rags. Felix Salomon & Co., by same, 677 bs. rags. Castle, Gottheil & Overton, Str. Chicago, Havre, 318 bs. rags.

Marx Maier, Str. Prinz Friederich Wilhelm, Bremen, 44 bs. old bagging.

Parsons Trading Co., Str. Vaterland, Antwerp, 1 cs. miscellan-

eous.

Castle, Gottheil & Overton, Str. Venezia, Marseilles, 59 bs. rags. S. Rawitzer & Co., Str. Galileo, Hull, 30 bs. new woolen rags. A. Katzenstein, by same, 318 bs. rags, 134 bs. bagging.

A. Katzenstein, by same, 318 bs. rags, 134 bs. bagging.
E. Butterworth & Co., by same, 81 bs. rags, 178 bs. baging.
P. Garvan, Inc., by same, 42 cls. old rope.
Darmstadt, Scott & Courtney, by same, 90 bs. rags.
M. O'Meara & Co., by same, 70 bs. new cuttings.
A. Katzenstein, Str. Noordam, Rotterdam, 143 bs. rags.
Felix Salomon & Co., by same, 171 bs. old bagging.
R. Helwig, by same, 991 bs. (124 tons).
P. Garvan, Inc., Str. Potsdam, 193 bs. old rags.
P. Garvan, Inc., Str. Zuiderdyk, Rotterdam, 209 bs. old rags.

Chemicals

J. L. & D. S. Riker, Str. Baltic, Liverpool, 296 csks. bleaching powder

Woodpulp

C. W. Rantoul Co., Str. Zuiderdyk, Rotterdam, 526 bs. (66 tons). Felix Salomon & Co., by same, 1,650 bs. (330 tons) mechanical. Harmon Paper Co., by same, 250 bs. (50 tons) sulphite. International Paper Co., Barge Iron Queen, Murray Bay, Quebec, 8,333 bs. wet pulp. Felix Salomon & Co., Str. Noordam, Rotterdam, 3,000 bs. (850 tons).

J. Andersen & Co., by same, 400 bs. (50 tons).
M. J. Corbett & Co., Str. Seitlitz, Bremen, 14 bs.
Felix Salomon & Co., Str. Vaderland, Antwerp, 110 bs. (22 tons).

AT BOSTON

Castle, Gottheil & Overton, Str. Caledonian, Manchester, 36 bs. old twines.

Scandinavian American Trading Co., Str. Pallanza, 1,550 bs. (250 tons), 170 bs. (25 tons) woodpulp.

Castle, Gottheil & Overton, Str. Marquette, Antwerp, 90 bs.

new cuttings, 170 bs. waste paper.
Paper Makers' Chemical Co., Str. Galileo, Hull, 39 bs. bagging. E. Butterworth & Co., by same, 40 bs. old rope, 30 bs. paper stock.

Paul Berlowitz, by same, 79 bs. old bagging.
Salomon Bros. & Co., by same, 236 bs. flax waste, 220 bs. old rope.
Felix Salomon & Co., by same, 13 bs. 59 cls. old rope, 1,250 bs.
(250 tons) woodpulp.

W. N. Procter & Co., by same, 56 bs. cotton rags.
P. Garvan, Inc., by same, 50 bs. old rags.
P. Garvan, Inc., Str. Cliftonian, 466 bs. old rags; 64 bs. new rags.

P. Garvan, Inc., Str. Caroline, 535 bs. old rags.

AT BALTIMORE

Castle, Gottheil & Overton, Str. Columbian, Antwerp, 20 bs. rags, 80 bs. bagging.

Marx Maier, by same, 126 bs. bagging, 137 bs. new cuttings, 87 bs. rags.

AT NEW ORLEANS

Castle, Gottheil & Overton, Str. Louisiana, Bordeaux, 348 bs.

Scandinavian American Trading Co., Str. Istria, Hamburg, 400 bs. (50 tons) 240 bs. (40 tons) 400 bs. (50 tons) woodpulp.

Felix Salomon & Co., Str. Carl Schurz, Hamburg, 1,040 be. (130

Castle, Gottheil & Overton, by same, 300 bs. (60 tons) woodpulp. Price & Pierce, by same, 4,580 bs. (572 tons) sulphite woodpulp.

The Bergvoik Co., by same, 600 bs. (75 tons) sulphite woodpulp.

J. Munroe & Co., by same, 64 bs. (8 tons) woodpulp.

P. F. Young, Str. Cliftonian, Rotterdam, 1 bl. new rags.

Felix Salomon & Co., by same, 670 bs. (84 tons) woodpulp.

Felix Salomon & Co., Str. Teresa, Trieste, 625 bs. (78 tons)

woodpulp. Castle, Gottheil & Overton, Str. Willehad, Bremen, 61 bs. old bagging, 106 bs. rags.

Castle, Gottheil & Overton, Str. Epsom, Rotterdam 87 bs. rags.

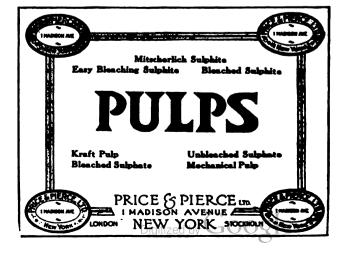
Parsons Trading Co., Str. Euxinia, 1,600 bs. (200 tons). Castle, Gottheil & Overton, Str. Kentucky, Copenhagen, 170 bs.

(38 tons), 170 bs. (38 tons), woodpulp.

Scandinavian American Trading Co., Str. Euxinia, Hamburg,
200 bs. (25 tons), 600 bs. (75 tons), 1,160 bs. (145 tons).

Talk of New Mills in Chile

In Valparaiso, Chile, J. S. Lira Smith is representing foreign capitalists in negotiations for a large tract of forest lands in the south of Chile, with the view of establishing pulp and paper mills. There seems to be a good opening in Chile for such an industry, reports Consul Albert A. Winslow, of Valparaiso.



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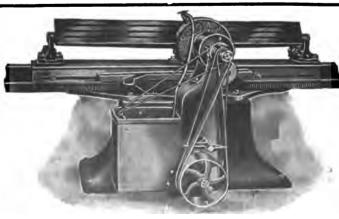


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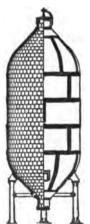
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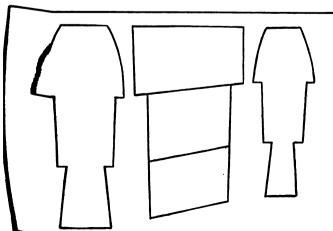
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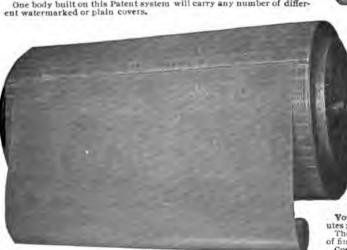
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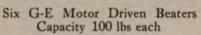
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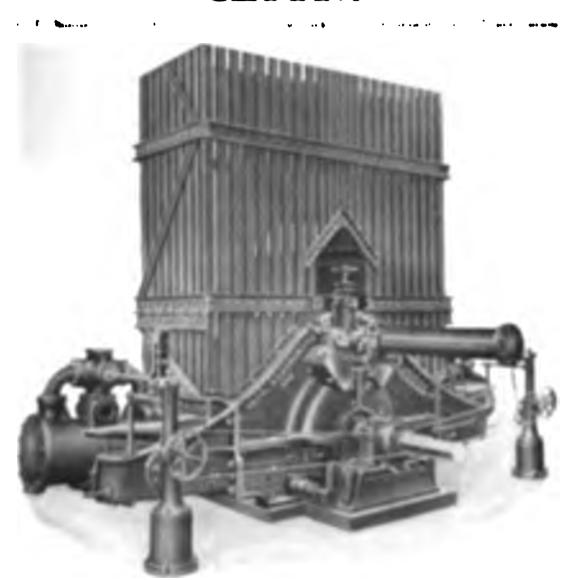
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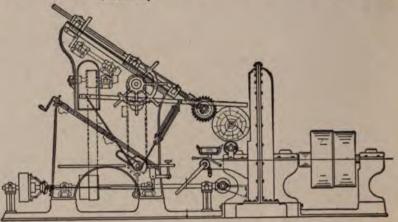
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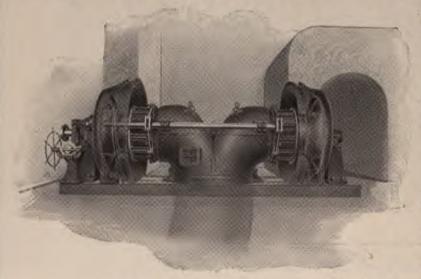


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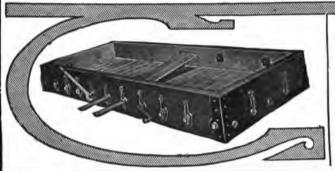
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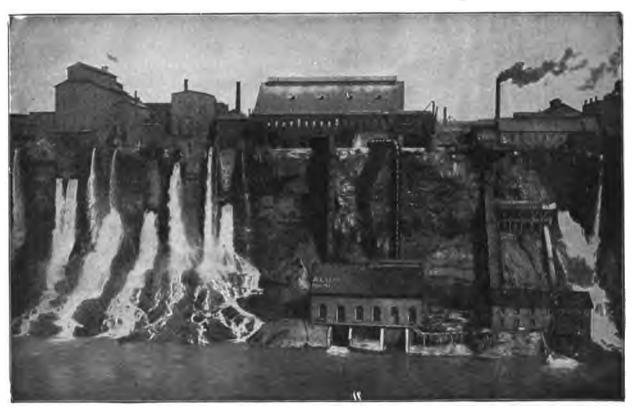
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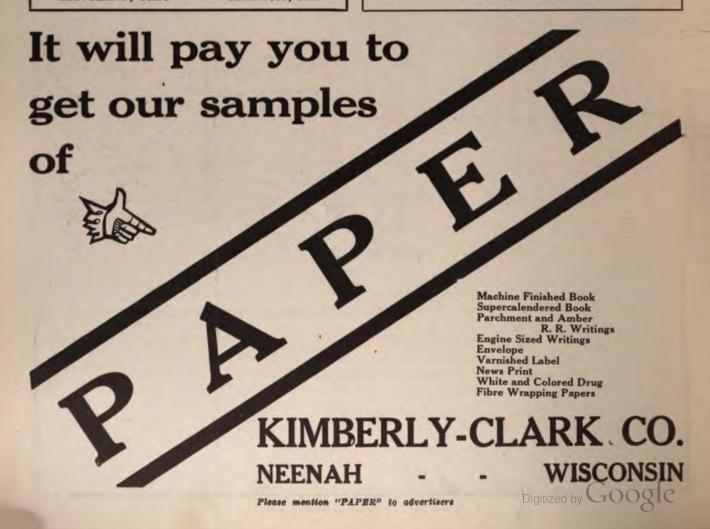
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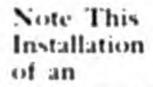
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same. It would probably not be profitable to attempt to recover rosin oils and by-products from wood containing as little as 2 per cent of resin. The value of the by-products from such wood will rarely reach \$3 per cord, and even in well designed and efficient works it is doubtful if a profit can be secured from them.

The experimental cooking was done in a small rotary digester holding about 4 kilograms (8.8 pounds); from 2 to 4 kilograms of air-dry wood were cooked at a charge. Wood and dilute alkali were placed in the digester, which was then rotated to insure perfect contact and heated during rotations until the pressure reached 40 to 50 pounds, when the digester was connected with a condenser and water and turpentine distilled at the stated pressure for the time stated in Table 1. digester was then closed and again rotated for from 15 to 20 minutes at 40 to 50 pounds pressure and again relieved as before, this procedure being repeated four or five times. The condensed water and turpentine were received in a graduated constant level vessel in which the turpentine could be accurately measured after separating from the water. The volume of water condensed was also noted. After the turpentine had ceased to distill in measurable quantities the wood was cooked at different temperatures for various periods of time. The chips as received from the chipper were very irregular in size and shape, varying from coarse dust to pieces an inch thick and several inches long. They were screened into three sizes—those smaller than 1/4-inch mesh, 31 per cent; those 1/4 to 1 inch mesh, 44 per cent.; and those larger than 1 inch mesh, 25 per cent of the wood. This separation was made in order to obtain data on the quantity of the various products that could be obtained from each of the several sizes and the time required to steam off the turpentine and to cook properly the chips of different sizes.

[The report here gives tabulated data on steaming

wood in alkali, which we omit.]

When fresh chips were used approximately 86 per cent of the total crude oils recovered were obtained in the first 30 minutes' relieving from the chips passing a ½-inch mesh; 82 per cent from the chips passing between a ½- and ½-inch mesh; while but 71 per cent were recovered from the chips larger than one inch. The recovery in subsequent relievings falls off rapidly from the fine chips, more slowly from the medium chips, and still more slowly from the coarse chips. Not all the turpentine was removed from the coarse chips. The total quantity of crude oils recovered was least from the coarse and greatest from the medium chips. There is no doubt, however, that the quantity of crude oils in the chips was least in the fine and greatest in the coarse, since the oils volatilize readily from the fine chips on exposure and very slowly from the coarse chips.

chips.

The quantity of crude oils actually recovered from the chipped lightwood under very favorable laboratory conditions was at the rate of from 10 to 13.2 gallons per 4,000 pounds of wood containing 20 per cent of moisture, this percentage being an assumed quantity, approximately the average percentage of moisture in air-dry, seasoned wood. This yield is considerably below the yield generally claimed by steam wood turpentine producers, but agrees quite closely with the experimental work of the laboratory at steam plants,

and also with the census reports.

Data of the same general nature were obtained in the distillation of the steamed chips. A smaller percentage of the total oils recovered was obtained in the first relieving, but this percentage was greatest from the fine chips and least from the coarse. The recovery decreased more rapidly from the fine and medium than

from the coarse chips. These figures also indicate the quantity of crude oils left in 4,000 pounds of each size of chips steamed in stationary retorts. This quantity is from 1 to 2 gallons in fine, 3½ to 3¾ gallons in medium, and practically 4 gallons in coarse chips. In other words, from 2 to 3.3 gallons of crude oils per cord remain in ordinary lightwood chips, steamed in the usual way in upright retorts.

It will be observed that there is some variation in

It will be observed that there is some variation in the total time of relieving and in the volume of water distilled among these experiments. Close observation of the accumulations of the oils indicates that these variations were not sufficient to cause a material differ-

ence in the amounts of oil recovered.

In the experiments with fresh chips in the first relieving or the first stage of the distillation, it required approximately 14 parts of water to remove 1 part of oil from the fine chips, 13 parts to remove 1 part from the medium chips, and 30 parts to remove 1 part from the coarse chips. The proportion of oils to con-densed water decreased very rapidly, and in the fourth or next to the last stage it required approximately 500 parts of water to remove 1 part of turpentine from the fine chips, approximately 350 parts to remove 1 part from the medium, and approximately 900 parts to remove 1 part from the coarse chips. Considering the whole distillation (four relievings) 1 part of oils was removed from the fine chips by approximately 51 parts of water, from the medium by 47 parts, and from the coarse by 90 parts. From the steamed chips 55 to 200 parts of water on the fine, 90 on the medium, and 125 on the coarse, were required to remove 1 part of turpentine in the first stage, and from 500 to 1,000 parts were required in the final stage by chips of all Of the total oils recovered, 1 part required from 133 to 310 parts of water, the greatest proportion being required by the coarse chips.

From chips which would pass an inch screen more than 90 per cent of the recovered turpentine was removed in two relievings and that the total time of steaming to accomplish this was from 1 to 1½ hours.

In these experiments the purpose was to remove all wood turpentine and pine oil from the chips, and not to determine the best conditions for doing this. Steaming was continued until the proportion of turpentine to condensed steam or water was much smaller than is usual or would be profitable on a commercial scale. Apparently all light oils, turpentine, and pine oils, which could be obtained under the conditions, were removed

It has been observed by the Bureau of Chemistry in refining crude wood turpentine with saturated steam that the lighter oils, those that may properly be termed "wood turpentine," distill at the rate of approximately 1 part of turpentine to 1 part of water, but this proportion slowly changes throughout the distillation, and toward the close, and when the heavy oils or pine oils only are distilling, there is only 1 part of turpentine to 5 or more parts of water. For the distillation of practically the whole of any volume of ordinary crude wood turpentine the distillation of from three to four times as much water is necessary. At the best 10 to 15 parts of water to 1 part of turpentine were required in these experiments, and the same proportions have been observed at steam turpentine works.

In the distillation of crude turpentine from wood with steam, it is desirable for economic working to approach these proportions as closely as possible, though it is almost certain that they can not be equaled and absolutely certain that they can not be materially increased. Every effort should be made to have the steam carry as large a proportion of turpentine as is

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OTHER EXPERIMENTS WITH THE BLACK LIQUOR

The black liquor was treated in several other ways. It was saturated at room temperature with carbon dioxide; then, under a pressure of 19 pounds, heated to 100°C., cooled and filtered. Filtration was slow when the mass became cold. The filtrate from the carbon dioxide precipitate gave a precipitate with hydrochloric acid. In a black liquor which contained 11.1 per cent of organic matter in solution, carbon dioxide precipitated 4.9 per cent and acetic acid precipitated 1.2 per cent from the filtrate. The carbon dioxide precipitate was dried and dry distilled. It yielded approximately 51 per cent of distillate, 17 per cent of water, 12 per cent of heavy oils, 11 per cent of light oils, and 6 per cent of creosote oils. The acetic acid precipitate did not contain all of the rosin removed from the wood by the alkali.

SUPPLY OF WASTE RESINOUS WOODS

The supply of waste resinous wood suitable for the manufacture of paper, turpentine, rosin, rosin oils, methyl alcohol, etc., can be only approximately estimated. The census figures for the lumber cut in 1910 are: Long leaf pine, approximately 14,000,000,000 board feet; Douglas fir, 5,000,000,000 board feet; western pine, over 1,000,000,000 board feet; or a total of approximately 20,000,000,000 board feet. Authorities agree that at least 60 per cent of the tree as it stands in the forest is wasted in converting it into lumber, and that 25 per cent of the trees remain in the forests to rot or be destroyed in forest fires. That is, approximately, 5,000,000 cords of waste wood are left annually in the forests in the lumbering of resinous woods, leaving out of consideration the dead and fallen timber in the uncut forest. This waste has been going on for many years. The sap or nonresinous part of the wood rots away in a few years, leaving the heart, or resinous portion, which will last indefinitely. Probably half of this annual forest waste becomes "lightwood," such as is used in the production of wood turpentine and tar. This material has been accumulating for years, and will probably continue to be added to for many more

In addition to this waste there is also a large source of supply in the stumps of cut-over lands and in the slabs and edging usually wasted at the mills. Altogether there are fully 8,000,000 cords of waste resinous woods annually produced in the lumber industry. This waste wood would yield all the wrapping, building, and other low grade colored papers, and all the rosin, rosin oils, turpentines, rosin spirits and methyl alcohol which are now being produced in this country.

COST OF WASTE RESINOUS WOODS

The cost of waste wood delivered at the mills in the South varies widely, but rarely exceeds \$5 a cord. The Bureau of Chemistry has found that the average cost of lightwood delivered at the turpentine plants approximates \$3.50 a cord. In case the wood is gathered by a lumbering company from its own forests and over its own tramroads this cost frequently does not exceed \$2.50 and may fall as low as \$1 a cord.

not exceed \$2.50 and may fall as low as \$1 a cord.

The stumps of long leaf Norway pine and of Douglas fir, after the timber has been cut several years, are usually much richer in resins than average lightwood. They are therefore especially suitable for the production of wood turpentine, rosin, and rosin oils. If care is taken to free them from earth, they are suitable for making paper. The cost of stump wood is often decidedly higher, especially in the West, than that of lightwood, because of the difficulty of removing stumps from the ground. This is best done by blasting,

which has been found to cost approximately 5 cents a stump for long leaf pine of an average diameter of 13.6 inches. Approximately 45 such stumps, $2\frac{1}{2}$ feet tall, will yield a cord of wood, which makes the cost on the land approximately \$2.25 a cord, which should be added to the cost of lightwood delivered at the mill, to give the approximate cost of stumps at the mill. The average cost of removing Douglas fir stumps varying from 1 to 4 feet in diameter is about 84 cents each in Washington State, and 9 such stumps, averaging 3 feet in length and 2 feet in diameter, will yield a cord of wood. This makes the cost of the wood piled on the land ready to ship approximately \$8 a cord, or possibly \$10 a cord at the mill.

In estimating the cost of removing and gathering stumps the increased value of the land for agricultural purposes must be considered. The value of the land will, in many instances, especially in the South, be increased sufficiently to pay for the cost of removing the stumps, and in other cases this increased valuation will greatly reduce the cost of the wood at the mill.

Papermakers will undoubtedly question the practicability of using stumps for making paper because of the earth adhering to them. This can be largely if not entirely removed by proper methods; and as material worth even less than wood a ton is profitably purified it appears reasonable to suggest that stump wood can also be profitably cleaned for papermaking at least in those regions far removed from the papermaking centers.

CONCLUSIONS

It has been fully demonstrated, both in the laboratory and in the mill, that paper of good quality can be made from pine wood. The Bureau of Chemistry has called attention to this fact and to the industrial opportunities in this field, in two former publications.

It is feasible to combine three well developed chemical industries—papermaking, wood distillation (in a modified form), and the manufacture of rosin oils—and thus to obtain from a single raw material, waste resinous wood, practically all the valuable constituents which it contains. The country's sources of paper, turpentine, rosin oils, and wood alcohol can be greatly augmented and the injury to forests by fire and insects materially reduced by the utilization of this wood. It is believed that the results here presented will hold, approximately, for good average lightwood, except as to refined wood turpentine, which should run higher than here found. Especially is this true of the long-leaf lightwood of North Carolina, which, experience has shown, yields more wood turpentine than does the lightwood of Florida. This fact is possibly due in part to climate conditions, the longer and hotter summer of the South volatilizing more of the light oils.

summer of the South volatilizing more of the light oils. The approximate yield for 4,000 pounds of cord air dry wood (3,200 pounds moisture-free wood) of the valuable products and the value of each, together with the total value produced from a cord, is shown in the following table. The values are approximate wholesale values at the plant.

Refined wood turpentine, 6 gallons, at \$0.40. \$2.40
Pine oils, 7 gallons, at \$0.35. 2.45
Rosin spirits, 11 gallons, at \$0.20. 2.20
Rosin oils, 40 gallons, at \$0.35. 14.00
Phenoloids, 12 gallons, at \$0.06. 72
Crude methyl alcohol, 8.5 gallons, at \$0.35. 1.20
Unbleached pulp, 1,440 pounds, at \$0.0175. 25.20

Thus products worth \$48.17 are made from wood which costs from \$2 to \$4 delivered at the works.

All these products are of good quality. The wood turpentine, pine oils, and rosin spirits are suitable paint

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German Pulp and Paper Chemists

Notes of the Annual Meeting of the Verein der Zellstoff und Papier Chemiker



UR German contemporaries contain elaborate report of the annual meeting of the Association of Cellulose and Paper Chemists, which was held in the Papierhaus, Berlin, on December 3, 1912, under the presidency of Dr. Müller. In continuation of our story of the meeting, an installment of which was given in Paper for January 8, 1913, the follow-

ing notes are made of the proceedings.

At a meeting of the trade committee on December 2 it was resolved to recommend to the directors, the reelection of the retiring members of the committee, Dr. M. Müller, Prof. Kirchner and Dr. W. Vieweg, as well as the addition to the committee of Prof. Dr.

The examination of the prize essay contributed by Dip. Eng. Chr. Christiansen on "Soda Cellulose, its Production and Chemical Properties," was assigned to Dr. v. Possanner, W. Schacht, and Dr. Müller. After hearing the unanimously favorable report of the gentlemen named, the committee resolved to recommend the essay for a prize. Regarding other prize essays on "The Steaming of Wood," the "Reddening of Sulphite Cellulose," for which the presentation period expired April 1, 1913, it was announced that a contributor had been found to take up the last named theme.

The consideration of the working problem for the

rosin-size commission was postponed.

The questions received were subjected to preliminary discussion.

A discussion regarding the trade report; the regular annual appearance of which had not been assured, led to the resolution to recommend the publication of the

report in order, unconstrained as to regularity At a meeting of the board of directors held at the same time and place, after the chairman, Dr. Max Müller, had opened the session and welcomed the members, a report of the proceedings of the trade com-

mittee was presented and the board assented to the addition of Prof. Dr. Heuser to the committee and voted an award of 250 marks to Dip. Eng. Christiansen for his prize essay. A committee was appointed to confer with Mr. Christiansen in regard to the publication of his work and the supply of a copy to every member of the association.

In connection with the Rosin-Size Commission a detailed progeamme was presented by Dr. von Possanner, which accurately set forth how the various samples of commercial sizings were to be selected, how the paper samples were to be prepared, and the sizing tests conducted. Following is a synopsis of the report:

Before taking the sample the casks are to be kept resting undisturbed in a horizontal position for several days; the top of the cask is removed and the sample taken, particular note being made as to whether stratification has occurred and if much dirt is present. Where stratification has taken place, samples to be taken from the different strata, but such size is to be regarded, in advance, as of inferior quality. Samples of four bounds to be taken from five casks, or 20 pounds in all. Where samples must be taken from standing casks they should be taken at different levels, while decanting the casks, in the quantities above stated. In the case of size not contained in casks, for instance, where a paper mill makes its own size, 20 pounds to be drawn from each boiling.

The samples to be sent tightly corked in clean and dry glass vessels (preserving jars), sealed and labelled to the testing place (Inscription: size-mark, place and time of taking sample)

These samples are given, as received at the testing place, a serial number, under which they figure in the analysis record: a second list showing with these numbers the trademark of the size sample is to be prepared.

The analysis includes observation of the outward appearance of the samples, especially in regard to stratification, color, fluid condition, etc., dry contents, total rosin, free rosin (in the case of pure rosin sizes only, too inaccurate with colloid sizes) alkali and colloid additions, calculated according to wet size as well as dry substance in regard to amount of rosin. According to the results of the analyses, the sizes are to be classified as: 1, rosin size, without addition. 2, colloid sizes, (a) with animal glue, (b) casein, (c) starch, (d) vegetable protein (paste), (c) carragheen, (f) waterglass, (g) dextrin and (h) soluble animal glue; 3. loaded sizes, containing rubber resins or other organic or inorganic loading substances devoid of sizing value.

Standard types for comparative purposes, to be made by the testing laboratory, are rosin size with 70 per cent dry contents, completely saponified and sapon-

ified with 10 per cent soda of the rosin.

With the commonest commercial types of colloid sizes, sizes with corresponding rosin contents are to be prepared with "F" rosin and included in the examinations.

Paper tests: As raw material for the paper samples,

1, bleached rags; 2, unbleached sulphite pulp; 3, a pulp mixture of 30 per cent unbleached sulphite cellulose and 70 per cent white mechanical pulp.

From these pulps the paper samples are to be produced in exactly the same manner, one series of samples each (a) with standard sizes, ((b) with colloid sizes made at the testing laboratory, (c) with the respective commercial marks, one series of samples each with the quantity of rosin customary in a 70 per cent rosin size and with the quantity of rosin requisite to ensure size fastness (or possibly uniformly with the rosin in a per cent size).

Experiments with coarsely ground and smeary stuff are at first to be omitted to avoid unduly prolonging

To ensure the use of uniformly ground fiber, it is desirable that the cellulose should be supplied as whole stuff from a beater in quantities each of 200 kilos (440 lb.), it being impossible to effect uniform grinding of all the separate test papers in small experimental beaters.

As water, owing to the difficulty of obtaining for all tests a natural water of uniform character, distilled water is to be used. A water of about 10 degrees of hardness might be used were it not for the difficulty of obtaining exactly equal quantities of carbonic acid or bicarbonates.

The tests were made in each case with one pound of dry pressed pulp. The crude pulp was mixed in invariably equal solution, sized, poured on to the dipping sieve, dehydrated to an exactly equal extent, pressed and dried by moist heat with due regard to the principles. The size adopted is 33 x 42.

Testing for size fastness is to be effected by the ink line test and by ink floating, immediately and after three months protracted storage, as well as for yellowing of the paper samples. The yellowing tests are to

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PAPER

A Weekly Illustrated Journal of Information on the Manufacture, Uses and Sale of Pulp and Paper

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Quebec's Latest Pretense

THE announcement that the Minister of Crown Lands had, on February 1, released from export restrictions all timber in the Province of Quebec proves to be entirely misleading.

The so called release is no release at all, but a mockery not even poorly disguised.

If we are correctly informed the government of the Province proposes to remove the export restrictions from any and all timber, provided the same be manufactured into paper in Canada.

In other words it is released only for the purpose of allowing the Canadian manufacturer of paper to nullify the American law and get his product into this country free of duty.

It is not intended to make it possible for any American to bring a stick of Canadian wood into this country to be manufactured here.

Indeed the situation is worse than it ever was before; for now the released wood must not only be converted into pulp in Canada, but must pass through every stage of manufacture and be made into paper before it can come into America.

The manifest design is to stimulate the growth of the Canadian industry and discourage the American as much as possible. And in doing this they make a jest of the American statute and laugh in our faces.

Will our representatives in the American Congress pay no heed to this insolence?

If they continue to meekly submit then we may inquire in the language of old, "How long, O Lord, how

Industrial Disputes Investigation

T the dinner of the Railway Business Association, held in New York City some weeks ago, the Hon. W. L. Mackenzie King, former Canadian Minister of Labor, delivered a most interesting address concerning the provisions and results of the "Industrial Disputes Investigation Act," for the adoption of which by the Canadian Parliament he wa_ largely responsible.

Briefly stated, this act does not provide arbitratios as is generally supposed, but its object is to secure complete and impartial investigation of all the deman and conditions affecting a threatened strike or locko

When the dispute arises in certain designated empl ments that concern the public and affect interests directly involved, the inquiry is made obligatory.

In such cases, a strike or a lockout put into effect. fore an investigation under this act is had, is a violation of the law. Where either is contemplated notice mus st first be given the Minister of Labor, accompanied by complete statement of the differences and the failure reach an understanding. Each party to the dispute then required to designate a number of the inquirit board, the two thus named to choose a third. In ca= of default in making these selections within a fixed tim it becomes the duty of the Minister to appoint suc members as may be necessary to complete the boar

The board thus constituted acts in a judicial capacit and is empowered to compel testimony and to take suc steps as may enable it to secure all the facts necessar to a complete report.

When the investigation is concluded and repomade, compliance with the recommendations of t board is optional. The purpose of the inquiry is as it may be done; which in most cases appears to res = lt in the acceptance of the finding of both parties to t \(\mathbb{L}\) 10 controversy.

The theory of the law is that most industrial disput es are the result of grievances more imaginary than rezul, and can therefore be obviated by a disclosure of taken facts. Most men, whether employer or employee, a ==e ordinarily unreasonable in their demands because their misapprehension of conditions. It not infrquently happens that they are mislead by their ow -n representatives. On the one hand, managers of large of erations sometimes deceive the real owners of the enter prise as to the attitude and efficiency of labor, while, or the other, labor leaders and agitators too often seel personal gain by persuading working men that they ar being unfairly treated. An impartial investigation ought therefore to clear away the misconceptions, and thus enable reasonable men to get together.

Moreover, if the report of such a board of inquir_ -- " should fail to satisfy the parties to the controversy, will in most instances crystallize public opinion and create a public demand against which an unreasonab —le contention cannot long endure.

That the law as it now exists in Canada has been fully

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THE WEEK'S LATEST TRADE NEWS

Good Work of Dealers' Arbitration Board

From time to time attention has been directed to the arbitration board of the Associated Dealers In Paper Mill Supplies of New York and only last week a very interesting dispute between a member of the association and a manufacturer was settled amicably by the arbitration committee of this association.

The point at issue was a question as to the quality of a lot of imported rags which had been shipped to the manufacturer and which had been rejected by him as not being as represented by the

Through the efforts of the president, Edwin Smith, these business combatants were brought together and both agreed to leave the settlement of their differences to an arbitration committee of the association. Within twenty-four hours, the whole matter was most satisfactorily adjusted both to the importer and the manufacturer.

This is only one of many instances where this association has been of the utmost service to its members as well as to the manufacturing branch of the paper business. The settlement of disfacturing branch of the paper business. The settlement of disputes of this nature, and others of a similar character, has made possible the avoidance of serious law suits, the placing of the goods in dispute in storage, and entailing, as it always does, a very large expense, in many cases, far in excess of the amount actually in-

Paper manufacturers are beginning to realize very fully the great assistance of the Associated Dealers in Paper Mill Supplies and the fair and equitable decisions which they are making on the differences which occasionally arise between members and their

Report to President on Quebec Situation

[SPECIAL TO PAPER]

Washington, Feb. 3 — According to representations made to Treasury officials the recent action by the Province of Quebec in raising the restriction on the manufacture of pulp from certain woods amounts to a discrimination against American holders of Crown lands, and to grant the free entry privilege, it is declared, would simply defeat the real intent of the woodpulp and paper clause of the reciprocity agreement provided in Section 2.

The State and Treasury departments have investigated the situation and will make a joint report to the President.

The complainants declare that Quebec has removed restrictions

only on the timber lands, where the province has received practical assurance that the timber will not be exported, but only the woodpulp and paper made from it in Canada.

It is also alleged that the province has refused to remove the restrictions from other Crown lands in the same province con-

trolled by Americans.

Until the question is settled by the President Secretary Mac Veagh has issued a temporary order for the collection of duty.

Overproduction of Pulp in Canada (?)

[SPECIAL TO PAPER]

MONTREAL, Feb. 3 - A statement of the stock on hand of mechanical pulp given out by manufacturers of ground wood points to overproduction. The surplus is said to aggregate 7.500 tons.

It is admitted that the news print and mechanical pulp mills at present in operation have more than kept pace with the widening market and that the new Canadian mills soon to be started will be able to take care of the expansion of the market in the United States for ten years. The following list of new paper mills erected in Canada, with their daily capacity in tons, in the last eighteen months, or in process of erection, was given out to substantiate this claim:

Lake Superior Corporation, 200; Spanish River Pulp & Paper Company, 175; Spanish River Pulp & Paper Company, Sturgeon Falls plant, 50; Minnesota & Ontario Power Company, 150; Price Bros., 150; Donnacona Paper Company (to be ready in fall of 1913), 50 (capacity to be doubled next year); Ontario Paper Company (ready in June), 110; Crabtree & Sons, 20; total, 745.

These mills will require 400,000 cords of pulp wood per annum, and by the end of the present year will be producing news print at the rate of 260,000 tons per annum.

Arthur Schoellkopf Dies in Florida

Arthur Schoellkopf, of Niagara Falls, N. Y., president of the Cliff Paper Company, died on Monday, February 3, of neurasthenia, following a nervous breakdown, at his winter home in Miami, Fla. With him were his wife and daughter and son-in-law, Mr. and Mrs. Julius Schwill, of Chicago. He was 55 years of age. The body was taken to Niagara Falls for burial.

George W. Sisson Dead

[SPECIAL TO PAPER]

Potsdam, N. Y., Feb. 3 — George Wing Sisson, president of The Racquette River Paper Company and The A. Sherman Lumber Company, died at his home in this village to-day, in the eighty-fifth year of his age.

George W. Sisson was born at Glens Falls, N. Y., December 19, 1828, a son of James Sisson and Gulielma Shaw Wing. His early business life from 1849 to 1860 was spent at Coxsackie, an active town on the Hudson River, and in 1860 he returned to Glens Falls and established a large drug and mercantile business which he conducted with great success for many years.

Glens Falls at that time was a noted lumber and sawmill town, and some of its lumbermen were becoming interested in the forests and mills on the north slope of the Adirondacks. The outlook in this business so appealed to Mr. Sisson that he closed out his drug business so appeared to Mr. Sisson that he closed out his drug business in the spring of 1867 and engaged at Potsdam, St. Lawrence County, New York ,in the manufacture of lumber, having purchased a half interest in the sawmill property then known as the Pomeroy & Pierson mill.

In the business reverses of 1873 Mr. Sisson met with financial

disaster but in 1875, having been joined by Augustus Sherman, a wealthy lumber manufacturer of Glens Falls, N. Y., their concern, the A. Sherman Lumber Company, now having abundant capital, started on a business career that proved to be prosperous, capital, started on a business career that proved to be prosperous, Mr. Sisson, being the resident and active managing partner. Mr. Sherman died in the fall of 1884, and January 1, 1886, his grandsons, William R. Weed and Frederick A. Weed, succeeded him in the partnership. Later their interests were sold to Mr. Sisson and the business of the A. Sherman Lumber Company was incorporated, the capital stock all being owned by Mr. Sisson and members of his immediate family.

Mr. Sisson was one of the projectors and largely instrumental in establishing the Racquette River Paper Company of Potsdam, N. Y., which was incorporated in 1891. He became its first president, an office which he held till his death. Its plant is on the Racquette river, three miles north of Potsdam village, and is the Racquette river, three miles norm of Potsdam vinage, and is of the most modern construction for the production of both ground wood and chemical pulp, and the manufacture of No. 1 manila and wrapping fibers of the highest grade. The daily capacity of the plant is 70 tons of finished paper, made from pulp produced within the plant itself. The raw material for this plant capacity of the plant is 70 tons of finished paper, made from pulp produced within the plant itself. The raw material for this plant is secured from the company's lands in the Adirondacks, tributary to the Racquette river. Its holding, together with the A. Sherman Lumber Company, aggregate 85,000 acres, which insures them a supply of raw material for many years to come.

Paper Company Takes Over Light and Power

GLENS FALLS, N. Y., Feb. 3—Several of the largest stock-holders in the Malone Paper Company, through Brayton R. Clark, a member of that concern, have just consummated a transaction whereby they take over the Malone Light & Power Company, which includes the main electric plant, dam, power-house and business. The plant is located on the Salmon river, a sflort distance below the mills of the Malone Paper Company. In addition the steam plant and gas works, the Whittlesey building, with all real estate and water power rights are taken over

In addition the steam plant and gas works, the writtlesey building, with all real estate and water power rights are taken over by the men associated with Mr. Clark.

L. G. DeCant of Watertown, and James A. Outterson of Carthage, are among the principal officers of the paper company, said to be interested in the deal, which involves \$200,000. Frederick D. Kilborn, of Malone, is president of the lighting company and according to a statement made by him the actual transfer of the property to the new owners will not take place until June 1.

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Electric Power Available on Fox River

[SPECIAL TO PAPER]

APPLETON, Wis., Feb. 3 — There has been a general belief that most of the waterpower on the Fox river is already harnessed and employed, so that little opportunity remains for new industries to be supplied. This belief is given a decided jolt by an open letter to the community hereabouts, written by John I. Beggs, president and manager of the Wisconsin Traction, Light, Heat & Power Co. This is the company that has recently secured control of the Green Bay & Mississippi Canal Co.'s electric power plant at Kaukauna, which has a capacity of several thousand horse power.

In his letter Mr. Beggs says that the company in addition, shortly, will have available 10,000 hp. of electric power from its Langlade county development, which power it would prefer to market in the Fox river valley. Further, there are undeveloped waterpowers remaining of the Fox river that the company is willing to improve provided it can sell electric current from them. He says the company would be willing to spend a million dollars in improving these powers if there were a demand for their use. He says the company proposes to make extremely advantageous rates for the thousands of electrical horsepower which it will have available shortly, and concludes with the remarkable statement that if industries can be found to use it, the company will develop and market as much power in the Fox river valley as is now developed from Neenah and Menasha to De Pere, in other words within a few years just double the amount of power now utilized in the Fox river valley would be available. This is certainly something that is worth investigation by manufacturers who are looking for places to establish new industries or remove old ones, where power and other conditions are especially favorable.

Spanish River Company Sued

SPECIAL TO PAPER]

APPLETON, Wis., Feb. 3 — Arguments have just been submitted in the United States court in Milwaukee in an action by E. A. Edmonds, of Appleton, to recover \$100,000 paid by him to the Spanish River Pulp & Paper Co., of Espanola, Canada, about four years ago. The action grows out of an agreement by Mr. Edmonds to buy the property of the Spanish River company for \$2,160,000. The first payment was \$100,000, and after it was made and the property had been under the new owner's administration for a short time a controversy arose over the title to the land overflowed by the company's dam Edmonds aasserted that the company could not give him a perfect title to the property it agreed to sell. The company insisted that it could. Anyhow the deal fell through, and now Edmonds is suing to recover his first payment.

NORTHWESTERN NOTES OF INTEREST

The Wisconsin railroad rate commission has rendered a decision favorable to the paper mill men in the matter of the transportation of pulpwood, and the various railroads bringing pulpwood to the Wisconsin mills have been ordered to reduce their rates to a certain schedule. The mill men have been fighting for this reduction for two years, asserting that the railroads were making a higher rate upon pulpwood than for logs shipped for other purposes.

The United States Court of Appeals at Chicago has just handed down a decision favorable to the Merrill Paper Company, and Grandfather Falls Company, which succeeded it, in a suit brought in 1908, by certain stockholders of the Merrill Paper Company, to declare illegal the sale of the property of the Merrill Company to the Grandfather Falls Company. The decision of the lower court was sustianed that the sale was a legitimate one, the plaintiffs having been asked to join the new corporation, but refusing.

refusing.

At the annual meeting of the Lindauer-O'Connell Co. officers were elected as follows: President, Luther Lindauer; vice-president G. P. O'Connell; secretary and treasurer, John Kline. George Kline will be general manager, in charge of the company's mills at Kaukauna, Little Rapids and Merrill.

Proceedings of the John Hoberg Co.

Frank Hoberg, president and manager of the John Hoberg Co., of Green Bay left last week for a trip to Europe, expecting to be some for several months.

gone for several months.

F. J. Harwood of Appleton has returned home from a trip to the Pacific coast.

The Bergstrom Paper Company, of Neenah, has awarded the contract for the filter plant for its new mill to the Norwood Engineering Company. Work upon the building for the new mill is going forward. The roof is now being put on the machine room.

John Bergstrom, of Neenah, who suffered an accident about

John Bergstrom, of Neenah, who suffered an accident about two months ago which for a time threatened serious results, is gradually regaining his former good health, and is able to resume his regular work.

New Plans of International Paper Company

The election of Philip T. Dodge as president of the International Paper Co. will inaugurate a new regime in the affairs of this corporation. Mr. Dodge will have the assistance of Mr. Burbank, who has been made chairman of the board of directors. Mr. Dodge has been a director of the International Paper Co. for several years and has a thorough knowledge of its operations. He is a large holder of the securities of this company and, according to the Wall Street Journal, will work in harmony with the Mills' estate and other extensive owners of its stocks and bonds. He is not a practical papermaker, but has a reputation of being a man of great executive and administrative ability. His success with the Mergenthaler Linotype Co. is indicative of his strength along constructive lines.

Since the organization of International Paper the presidents have been technical papermen. Mr. Burbank has been in business over 50 years and had asked the board to relieve him from the heavy responsibility of further directing this corporation's affairs.

At present 80 per cent of the products of International Paper is newsprint. With increasing imports from Canada and other foreign countries, some directors are of the opinion that a situation might arise when it might be difficult for it to dispose of its primary product at satisfactory prices. To eliminate this difficulty, it is planned to diversify the future products of the company. This will include manufacturing of tag-paper, boxpaper, supplement paper and perhaps other high grade papers. The company owns many valuable waterpower sites. It is planned to convert the surplus energy not used in paper manufacture into electric light, heat and power and to market it in towns near the company's plants. It is estimated that the water rights owned by the company in New York, New England and Canada could be made to produce 300,000 horsepower.

It is not at all improbable that the development of the com-

It is not at all improbable that the development of the company's business will include the construction of new mills in Canada where the company owns extensive woodlands. This is regarded as an inevitable step by International Paper interests because the competition of Canadian paper is seriously affecting the American market. Most of the Canadian plants are of recent date and of the highest machanical perfection.

the American market. Most of the Canadian plants are of recent date and of the highest mechanical perfection.

These new plans call for large expenditures. The company has already selected two sites in Canada where it will probably expect mills within the next twelve months.

erect mills within the next twelve months.

President Wiggin, of the Chase National Bank, who is chairman of the finance committee, will advise Mr. Dodge on the question of financing. The first step in this direction will be to pay off the floating debt and probably make it a funded obligation. It is not at all improbable that this adjustment of the finances will call for the sale of authorized but unissued bonds.

The policy of the new administration will be to take no contracts either at a loss or at the cost of production. The company has spent considerable money throughout the year improving the property. One of the International Paper's biggest assets is the ownership of timberlands in Maine and Canada. The policy of the company at present is not to use any of its own wood where it can buy raw material in the open market at reasonable prices.

Mrs. Thomson Laid to Rest

[SPECIAL TO PAPER.]

DAYTON, O., Feb. 3 — The funeral of Mrs. Peter G. Thomson, which took place last week at Sanibel Island, Florida, after a startlingly brief illness, was held Saturday afternoon at the family residence, Laurel Court, Cincinnati. About two hundred persons were in attendance. An unusual feature of the service was the fact that instead of the body resting in a casket while the ceremonies were being conducted, it reposed in an attitude of slumber upon a couch. The striking arrangement made it appear as if Mrs. Thomson was merely enjoying an afternoon rest, and it was not until the pall bearers had placed the remains in the casket that the illusion was dispelled. The Ohio Humane Society, of which Mrs. Thomson was a mamber. was represented at the funeral by Secretary Trounstine. Mra. Thomson, whose death placed a large family connection in mourning, was one of the few life members of this organization. Her selection to that position was due to her interest in the work some years ago. In addition to many other philanthropic and educational enterprises with which she was identified, she conducted the Ohio Humane Society exposition held in Cincinnati in 1890, when \$24,878 was raised. Five years later she was at the head of another benefit bazaar for the society, then raising \$10,037.50. The pallbearers were the three sons, Peter G., jr.. Alexander and Logan, her sons-in-law, Walter D. Randall and Reuben B. Robertson, of Asheville, North Carolina and her brother, William Gambele, of Chicago.

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Fox River Co. Not to Build Pulp Plant

[SPECIAL TO PAPER]

LOCKLAND, O., Feb. 3 - H. W. Nichols, vice-president and general manager of the Fox Paper Company, is out with a denial of the rumor which has gained currency in trade circles to the effect that the company is about to erect a paper and pulp plant. He says the Fox Paper Company has no intention of doing this. The rumor started, he thinks, owing to the fact that he is officially connected with the Fox Paper Company and is also president and general manager of a new company recently incorporated under the laws of the State of Virginia, known as the Chesapeake Pulp and Paper Company, Inc.

The new plant will be located at West Point, Virginia, which is

situated on the York River, an arm of Chesapeake Bay. struction will be begun almost immediately of the first unit of the sulphate pulp plant, which unit will be 20 tons. It is planned to

regulations and the conditions of the market permit.

The officers so far elected are, H. W. Nichols, president and general manager, Cincinnati, Ohio; Melville T. Nichols, treasurer, Boston, Mass. The superintendent will be Robert Woodhead of Norfolk, Va.

The present capitalization is \$300,000.00; the engineer will be Geo. F. Hardy, of New York; the general offices are now located

at Lockland.

In an interview President Nichols emphasized the fact that additions and enlargements to the projected plant will be held in abeyance pending legislation pertaining to the tariff on pulp and paper. The construction has been undertaken as the first unit of a plant and developments will be awaited before pro-The construction has been undertaken as the first ceeding farther.

Lower Freight Rates on Pulp in Wisconsin

[SPECIAL TO PAPER]

GREEN BAY, WIS., Feb. 3 -- The railroad rate commission, on GREEN BAY, Wis., Feb. 3 — The railroad rate commission, on the petition of the Pulp and Paper Manufacturers' association on Monday ordered the Chicago and North-Western, and Chicago, Milwaukee and St. Paul, the Imaha, Duluth South Shore and Atlantic, the Green Bay and Western, the Soo, the Northern Pacific, the Wisconsin Central, the Wisconsin and Michigan and the Wisconsin and Northern railroads to materially lower

The new rates for a hundred pounds are: For five miles, \$1.35 as against \$1.50, under the old rate; ten miles, \$1.45 as against \$3.75, and 300 miles, \$5.10 as against \$6.75.

The ruling of the commission marks the end of a two years' fight on the part of the paper and pulp manufacturers of the state, who asserted that the rates charged by the railroads for shipments of lumber and logs were lower than those charged for pulp shipments.

Sues to Recover Contract Binder

SPECIAL TO PAPER

GREEN BAY, Wis., Feb. 3 - Arguments were made last week before Judge Geiger in federal court at Milwaukee in an action involving \$2,160,000, in which Edward A. Edmonds, former chairman of the Republican state central committee of Wisconsin, and the Spanish River Pulp & Paper Company of Espanola, Canada, are parties. P. H. Martin, of Green Bay, represented Mr. Edmonds.

The action grew out of an agreement made by Mr. Edmonds to buy the mill and property of the Spanish River Pulp & Paper Co. for \$2,160,000. A contract was drawn and agreed upon by the directors of the company in April, 1907, and the sum of \$100,000 was paid by the purchaser in May of that year. The shareholders met in June, but in the meantime a controversy arose over the title to the land which was overflowed by water from the paper mill dam.

The company assured Mr. Edmonds of a clear title and represented to him, it is said, they had a clear title to the crown lands. Edmonds stood ready in 1908 to pay \$1,600,000 more on the deal but withdrew, alleging that the company could not and did not give him clear title to the lands. He is now suing to recover the \$100,000 he paid to bind the deal. The company claims it had

good title to the land. Edmonds has claimed that by constructing the dam, which produced a 60-foot head of water, the water overflowed on lands which the company held title to for only 16 years. The head would have to be cut down at the end of that period so that the waterpower would be of no use.

Pulpwood Terminal Company Organized

[SPECIAL TO PAPER]

WATERTOWN, Feb. 3 - The Ogdensburg Pulp Terminal Company is the name of the concern, which has just been organized and for which incorporation is sought, to carry on a pulpwood supply business for the De Grasse Paper Company and the Carthage Sulphite Pulp & Paper Company, known as the Outterson interests. The pulpwood company will be capitalized at \$40,000, half of which will be common stock and the other half preferred stock. The promoters of the proposition are James A. Outterson, L. G. DeCant and F. A. Augsbury, all officers and principal stockholders in the De Grasse and Carthage Sulphite Companies. The new company is organized primarily with the idea of supplying the Outterson mills. Nine acres of ground on the banks of the St. Lawrence river near the New York Central tracks, have been leased with the privilege of purchasing and a dock 300 feet in length will be built to accommodate the boats bringing in the Canadian pulpwood. Electric conveyers will be built for taking the wood from the boats to the storage site and built for taking the wood from the boats to the storage site and other conveyors will run from the wood pile to the car tracks for loading the wood on cars for transhipment. It is expected that Neil Outterson, son of James A. Outterson, will manage the wood supply business and look after the purchase of the wood in Canadian markets. The Outterson interests at Pyrites will use about 50,000 cords a year, the production at that plant being 175 tons daily. It is announced that later the terminal company proposes to extend its business and supply wood for other mills section. Some local users of pulpwood assert that the this section. Some local users of pulpwood assert that the proposition as now financed will not be adequate to look after anything except the Outterson mills and that to supply other concerns more money and greater facilities will be needed BLACK RIVER.

Schroon River Company Directorate

WARRENSBURG, N. Y., Feb. 3—The annual meeting of the Schroon River Pulp & Paper Company was held recently, when

the following directors and officers were elected:
Directors—Mrs. Gertrude Finch, Jeremish T, Finch, of Glens
Falls; Edward F. Murray, of Troy; W. L. R. Durkee, of Fort
Edward; Senator James A. Emerson, Andrew Reidy and Lewis Thompson, of Warrensburg. Mrs. Finch was added to the board, but all of the others were reelected.

Officers—President, Jeremiah T. Finch; vice president, Edward F. Murray; secretary, W. L. R. Durkee, treasurer, Senator

James A. Emerson.

A dividend of six per cent was declared.

Charles F. Hubbs & Co.'s New Department

[SPECIAL TO PAPER]

The widely known paper jobbing house of Charles F. Hubbs & Company, New York, has opened a rag and paper stock department under the management of H. P. Brock. Mr. Brock has had many years' experience in the paper stock business, both in New York and Philadelphia and is well and favorably known in the trade generally. Hubbs & Company, with nine branch houses scattered over the East, is one of the largest paper distributing organizations in this country. This firm's standing in the trade should at once focus the attention of the mills on their new department which is certain to command an instant success.

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H. M. Haven

Wm. W. Crosby

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West Dudley (Mass.) Mill to Start Up

SOUTHBRIDGE, Mass., Feb. 3—The paper mill at West Dudley has passed into the hands of the Burmus Paper Company, a New York concern, and the mill is being completely overhauled and put in condition for the manufacture of high grade paper specialties, including fine bristols, cover paper and cylinder books.

The president and general manager of the concern is John M. Burby, a practical papermaker of long experience. The vice president is B. W. Petsche, and the secretary and treasurer, Fritz Muser.

The concern has been about six weeks working to get the place in condition, and two large cement walls have been erected to carry the machinery. At present there are about 15 men at work on the improvements, and it is expected that the actual work of making paper will be started this week.

The force of help at the start will be 25 men, and this will be doubled in a few months, or as soon as the proper machinery can be installed and the buildings put in shape to care for so many hands. The company is to put in a steam plant to act as an auxiliary to the water power at that point, and an electric plant is being installed which will give ample lighting facilities, both for the mill, and for the village of West Dudley, in case the citizens would like to have electric lights.

Watching the Beaver at Work

[SPECIAL TO PAPER]

Rumford, Me., Feb. 3—Much attention is being attracted to Fort Fairfield by reason of a very perfect beaver dam which is town. The colony includes eighteen beavers. These cunning little creatures have shown great intelligence in using their teeth, which are as sharp as knives. They have gnawed down trees 16½ inches in diameter, also several trees eight inches through, and afterward cut off the branches, dividing up the trunks into suitable lengths for floating down to the stream to their dam. The result of their labor is most interesting and well worth going many miles to observe, it all being done in the most workmanlike manner. The water near their dam is about five feet deep. Their houses are built of mud and sticks and look like RUMFORD, Me., Feb. 3-Much attention is being attracted to feet deep. Their houses are built of mud and sticks and look like rounded heaps of rubbish. The interior is a nice little room with carpet of chips, grass and moss. The doorway is under

Moving to Save Rustic Retreats

[SPECIAL TO PAPER]

RUMFORD, Me., Feb. 3-Word comes from Bath that certain Bath residents who appreciate the sweet, pastoral beauty of the Witchspring road, or Lovers' Retreat, are invoking the law enacted through the suggestion of Bath residents, by which any town or city officials may condemn and take for public use and preservation strips of land along highways for purposes of forest preservation. Portable saw mills are cutting into hallowed places in the vicinity of Bath. Old leafy avenues, pine-scented, where Bath men and maidens have walked when our grandsons were young, are in danger of being made ugly and barren. Therefore Bath citizens, led by Hon. Harold M. Sewall, who loves Maine for what she has been, what she is, and what he would have her be, agree to raise by private subscription the amount required to save these lovely places.

Expanding Export Trade of New York Firm

M. C. Parsons, president of the Parsons Trading Company, paper merchants and exporters. New York, sails today (Wednesday) on the steamship Carmania of the Cunard line for England and the Continent in the business interests of his firm. He is accompanied by his family and secretary.

The increasing business of the Parsons Trading Company in

the export of printing machinery has made it necessary to send the manager of the machinery department, J. X. Brands, on visits to their various foreign offices, and he will sail on the steamship Occanic, February 8.

Death of H. H. Stoddard

Henry Haven Stoddard, a retired paper manufacturer, died Sunday at his home in Huntington street. New London, Conn. He was fifty-eight years old and was a prominent Mason. He is survived by his wife, one son and one daughter.

News Notes from Here and There

F. W. Fletcher has withdrawn from the presidency of the Flet cher Paper Company, Alpena, Mich., to give more time to the development of the Alpena Power Company, and the Alpena Electric Light Company.

The Riordon Paper Mills Company, Merritton, Canada will proceed this spring with the erection of new paper mills to cost \$2,500,000. The Ontario Paper Company is building: mill at Thorold to cost \$1,000,000.

R. M. Hawkins, Jr., formerly of the Standard Welding Company, Cleveland, has entered the employ of the Hill Clutch Co Cleveland, Ohio, as Eastern representative connected with the New York sales office at Hudson Terminal, 50 Church street

Word has been received here by friends of Marshall D. Lug ton, of Indianapolis, that he has severed his connection will the Beveridge Paper Company, of that city, and on January 1s will become the general manager of the Knerr Paper and Board Company, of Kokomo, Ind. Mr. Lupton has been connected with the Beveridge Paper Company for many years, having formerly been associated with the Xenia plant of that company.

Behrend's Suit Disposed Of

The United States District Court for the Southern Distric of Ohio entered a decree in the case of Behrend & Behrend agains the Howard Paper Company, on January 9, 1913, in favor the Behrends against the Howard Paper Company. This decresustains the Behrend's rights under their patents and dispose of this suit.

Washington Mill to Increase Output

SPOKANE, Wash., Jan. 25—The capacity of the paper ma at Millwood will be increased soon from 20 to 60 tons a dagaccording to an announcement made by W. A. Brazeau, local head of the concern at a meeting of the chamber of commerc-The Company has already invested \$450,000 at Millwood, are will expend \$500,000 more this coming season.

Astoroga Mill Will Keep in Operation

LITTLE FALLS, N. Y., Feb. 3-In the matter of the Astoroga Paper Co.'s bankruptcy proceedings, Judge Ray has appointed E. H. Kingsbury as receiver, and C. V. Barrett, Theodore L. Rogers and Charles Eagan are named as the appraisers. During the bankruptcy proceedings the mill will be kept running, as it is said to be now doing a profitable business and could meet all obligations within a reasonable time if present business conditions continue. It is hoped that this may be the outcome.

Yellow Pine Paper Co. Adds to Plant

The completion of the new incinerator room and equip of the Yellow Pine Paper Co., Orange, Texas, is announced in a recent circular to the trade. This addition to the chemical department doubles the pulp capacity of their plant. The added equipment consists of a Hellnerrs System Incincrater and Evaporator, made to their order by Aktiebolaget. Kachtade Mekaniska Werkstad, Karlstad, Sweden, which is said to be the only one of its kind in America.

This addition to the plant, which represents an entiry of an enormous sum of money, will make the work in the incinerator department 100 per cent easier than heretofore, when it required a double crew continuously on hand to keep it go

Diamond Jewelry Found in Rags

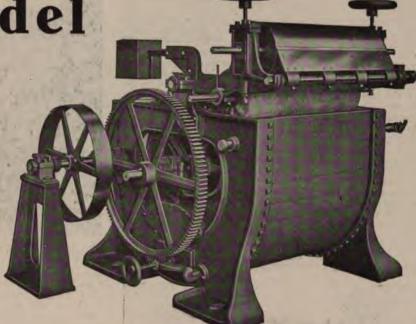
A correspondent of PAPER in Mille Roches. Ont., Canada, thinks it would interest our readers to learn that in the sorting room of the St. Lawrence Paper Mills, in Mille Roches, the girls employed there have found several diamonds of various sues. some mounted in rings, others in carrings and several loase ones. This paper stock came from New York. Our correspondent believes the missing jewelry will be advertised for in the daily newspapers. Digitized by Gogle

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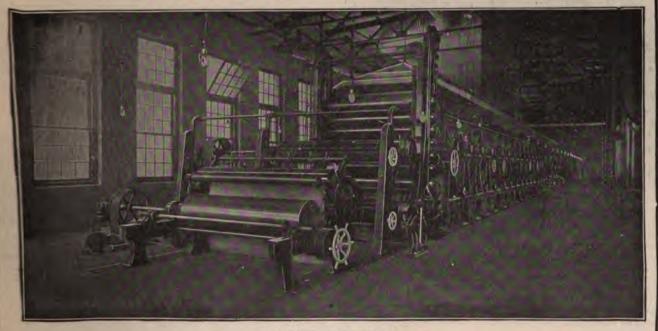
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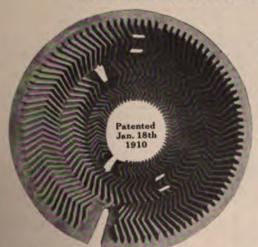
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I Please write us about it.

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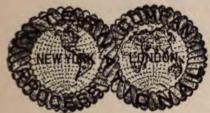
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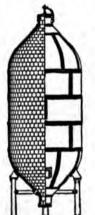
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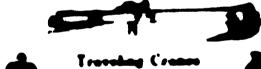
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February 12, 1913

No. 1

PAPER

A Work's Distrated Joseph of Technical and Industrial Information on the Manufacture, Sair and Use of Pulp and Paper



PUBLISHED BY

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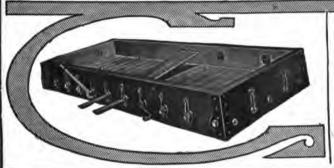
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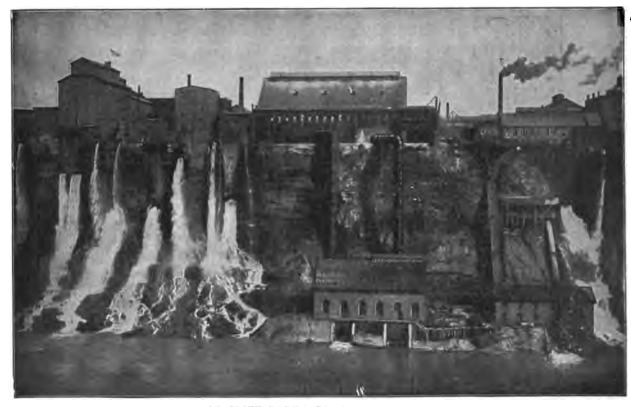
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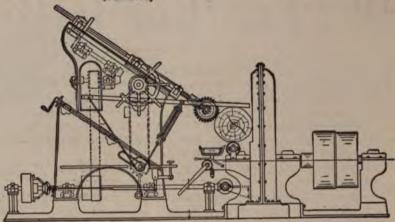
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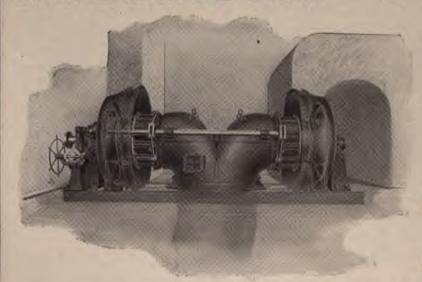


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many instances there are chemical reactions and a nonuniformity in the application of the solutions which may destroy the size. Those procedures in which the irregularities of the spread of ink or its appearance through the paper are interpreted also are seriously influenced by humidity, formation of the sheet, selective absorp-tion, and the personal factor which enters into the interpretation of the results observed.

That any of the present tests will detect poor size, upon which ink spreads, is unquestionable, but that they will detect superiority of sizing, where the writing quality has shown no distinction, is doubtful. Nearly all writing papers have good writing qualities, whether they be sized with rosin or with the best grades of animal size, by careless or the most painstaking methods of sizing and drying. Current methods are therefore unfit to distinguish differences in the quality of sizing mater-

ials or in the character of processes.

The test herein described was devised to differentiate between the relative values of the sizings of papers which the current methods failed to detect. It was devised to determine whether there is superiority of sizing in papers dried in any particular way. method shows marked differences in sizings, all of which are resistant to ink. It has been found, for instance, from the examination of hundreds of samples of papers representing all grades and weights that the sizing of many loft-dried papers is very inferior and is equaled by many machine-dried papers.

The test consists in drawing a strip of paper over the surface of an iron tannate ink and allowing it to drain and dry naturally. Upon examining this inked surface with a magnifying glass it will be found that a well-sized paper will show no indication of the fiber having absorbed the ink, and the entire surface will be uniformly

and lightly colored.

Sizings may be further differentiated by rubbing the surface of a paper with an ink eraser, brushing off the loose particles, and proceeding as directed. A paper which is well sized through will still be uniformly colored

and the fibers will take the ink but little.

The test is valuable in showing the faults of mill practice, especially as to whether in the sizing of highgrade papers the best results obtainable are being procured. By its use the paper maker can keep his product up to a desired high standard, and the purchaner can assure himself that where the character of sizing is an important property poorly sized papers are not accepted.

Pine for Papermaking in Australia

The right to cut a species of pine that resembles the American pine, except that its wood is yellower and more brittle, to over a tract of 100,000 acres, has been waysired, according to Srensk Papperstidning by the Churchsland Pine Co., on condition that the tops of the and in Yarraman Creek, 120 miles northwest of Bris-Australia, a small sulphate cellulose plant for this purpose.

The pine trees they will cut attain a height of 200 feet, with a diameter of 4 feet at the base and the traceives commence at about half their altitude. They As that grow in close plantations but at a distance of

ainst 30 to 50 feet apart.

A modish engineer, Cecil Laurell, formerly with the Pappershruks A B. sulphate cellulose and paper will at Oerebro, Sweden, has been engaged to assume erection and management of the plant,

NLY the fermentable sugars (pentoses) are eliminated from spent sulphite liquor, when the liquor is fermented for the distillation of The numerous other organic substances contained in the liquor remain, though they may have undergone some change in the process of fermentation.

The residuum of the distillation process consequently still contains great quantities of organic substances which pollute the river or streams into which the liquor may be discharged. A recent invention of P. G. Ekström has for its object a method of eliminating from the distillation residue and at the same time of utilizing a considerable portion of those organic substances by precipitating them by means of an inorganic or organic basic substance or a mixture of both. It has been found advisable in order to obtain a more complete precipitation to precipitate first after the distillation residue has been oxidized or reduced in an acid or alkaline solution.

The distillation residue can for instance be made alkaline with calcium carbonate, and the alkaline solution oxidized with air, but in presence of a contact substance, for instance a manganese salt. This operation can be executed at any convenient temperature.

The organic substances are precipitated with calcium carbonate after having been oxidized by aeration. This operation is suitably executed at a high temperature. Aniline may be mentioned as an example of an organic basic substance.

What has been stated about distillation residues from the manufacture of alcohol from sulphite waste liquor also applies to distillation residues from the manufacture of alcohol from other saccharine liquors, obtained when other substances than wood, containing cellulose, have been treated, peat for instance.

The claims set up follow:

- Method of separating organic substances from the distillation residues from the manufacture of alcohol from sulphite waste liquors or similar saccharine liquors, depending upon whether this separation is effected by adding an organic or inorganic basic substance, or a mixture of such substances eventually at an elevated temperature.
- 2. A modification of claim 1 depending upon whether the distillation residues before the precipitating with the basic substances are oxidized at any temperature on reduced in acid or alkaline solutions, or eventually i_ presence of a contact substance.

This is evidently a patent on an idea and it is to hoped, that it will be followed by a practical arm thoroughly demonstrable working method.

Numerous attempts have been made during the pas fifteen years to find some process of precipitating the organic substances from sulphite waste liquors, but so far as is known no satisfactory working method has az yet been found.

Recent U.S. patents include No. 1, 042, 332, in which the waste liquor from the sulphite pulp process is treated with calcium carbonate (or similar material) and ammonium sulphate, to neutralise free sulphurous acid, to convert organic compounds loosely combined with sulphurous acid into compounds innocuous to the subsequent fermentation, and to increase the quantity of nitrogenous matter in the liquor.

An improvement on the foregoing. No. 1,046,160, consists in adding urine to the waste sulphite liquor to be fermented for the production of ethyl alcohol. Before adding the urine it is sterilized by heating, so as to

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tuents is influenced to a degree to be taken into consideration in practice, not even if the pulps are not quite washed. The total result of the tests is to be summarised by saying that the formerly customary determination of the dry constituents of celluloses at about 105°C. is perfect and supplies reliable values."

The Theory and Practice of Beating

S was anticipated at the time of its publication, the paper on "Power Consumption in Beating which appeared in the December 18 issue of PAPER, has been the cause of no little controversy among practical men. The author of the article, Clayton Beadle, an authority on papermaking in England, criticizes in it some of the statements made by Arnold Rehn, a German engineer, in his article, "Power Consumption when Beating Half and Whole Stuff," published in Papierfabrikant, and Mr. Pauli, in a contribution to the same publication, under the caption, "Remarks on the Theory and Practice of Beating," comes to the support of his countryman with the quotation of instances from practice that sustain Mr. Rehn's reply to his critic. To quote his statements, he admits his inability to deal with the question from a purely theoretical standpoint, but cites instances from practice in support of the statements made by Mr. Rehn, one of which, being on paragraph 5 of his reply, is as follows:

It has probably happened to many beater engineers that in spite of strenuous beating work, the never satisfied jaws of the stuff box have become threateningly empty. The beating rolls are lowered toward the bed of the hollander, until they hum and very often their efficiency is thereby increased so that the stoppage is avoided. But just at this critical moment, an occurrence is not unfrequently encountered the consequences of which bring great mortification: the belt of a hollander that had almost finished its task, slips off. How could that happen? The central engine must be stopped in order to replace the hollander belt and the entire work is brought to a halt. The managing engineer scolds, the workmen rave, the machine tenders curse—and the poor beater man is distracted over his ill fortune. He had only set the beater rolls as sharp as ever, but as a shortage of pulp was imminent, he had set the rolls just a trifle deeper. The hollander had been running for three to four hours in this position and when nearly finished the belt drops off.

Rehn says, at one point in his paper: "As long as the cellulose is coarse, the consumption of power decreases during continued beating with the rolls at the same setting. But as soon as the pulp has attained a certain degree of smeariness, the opposite occurs; while the setting of the rolls remaining the same, the consumption of power increases. Result: on exceeding the critical point in belt and power conditions, the belt slips off or breaks."

A further occurrence, bearing out paragraph six in Mr. Rehn's reply, is described by the writer as observed by him in beating pergamine, which proves that the addition of size and alum immediately on charging the hollander, increases the beating period. It is well known that on adding size to cellulose just introduced, the stuff swells greatly and foams. Moreover, in beating pergamine, the hollander is charged as heavily as possible to insure smeary stuff. For this reason he deferred sizing until the discharge of the cellulose so as to be able to charge more heavily. After he had practised this method of charging for several days, the beater man informed him that the cellulose was ground short more quickly. And coincidently, the machine

tender told him that the late sized cellulose, especially the thicker kinds, was much more readily dehydrated. The pulp was short, but not as smeary as formerly. Mr. Pauli adds: "I then proceeded to experiment in the use of unsized stuff for pergamine. The result was so favorable that since 1898 I have never sized any pergamine or pergamine substitute. A cellulose that contains so much cellulose rosin as these kinds, is not only greaseproof, but inkproof, and absorptive pergamine that raises bubbles, I have not yet seen. Expressed in figures, I obtain on an average, 100 kilos of unsized pergamine, with the same setting of the rolls, in 105 minutes, greaseproof, compared with 120 minutes beating time when size and alum were added at the charging.

"I hope the above will prove a further investigation to the practical utilization of Rehn's investigations and shall be glad if other practical men will communicate

their experience in this field."

Special Paper for Newspaper

THE newspaper publishers of the country were recently asked if they would be willing to publish copies of their paper on linen paper for binding purposes in response to the demand made by the librarians throughout the country for daily newspapers printed on paper that could be preserved indefinitely. According to a report in the Brooklyn Daily Eagle, a large number of replies have been received to this invitation, but only eleven papers found the project sufficiently attractive to justify the labor and cost which such a special edition would entail. A great majority of the publishers thought the cost would be prohibitive. The papers which agreed to publish the special edition are the Brooklyn Daily Eagle, the Montgomery, Alabama, Advertiser, New York Staats Zeitung, New Orleans Item, Providence Journal, Providence Evening Bulletin, the Capital of Topeka, Kansas, Minneapolis Tribune, Washington Evening Star, Daily Northwestern and the St. Paul Pioneer Press.

J. I. Wyer, State Librarian of Albany, subscribes for about fifty daily and weekly papers in the state. In a letter which he has sent to all newspapers he has stated that he is reluctant to place a continuance subscription unless assurance is given that the grade of paper on which they would be printed would be of the same quality as that of the Brooklyn Eagle.

The committee on the deterioration of newsprint paper, of which Frank P. Hill of the Brooklyn Public Library, is chairman, in submitting its final report to

the organization, says:

"The committee in its search for a newsprint paper which would endure indefinitely has learned that there is no insurmountable barrier to prevent the printing of a special edition of a newspaper after the regular edition has been run off—provided the librarians will interest themselves in the subject and be willing to pay extra for such an edition. It now remains for librarians and state associations to take action in their own localities. In many states there are probably two or three papers which would be taken by ten or fifteen libraries. The committee considers its labors ended, and asks to be discharged, leaving it to local associations and individual librarians the task of gaining further concessions from the publishers.

"Whatever results have been achieved have been due to the interest, practical suggestions and cooperation of the newspaper publishers throughout the country and particularly those of New York who took

part in the conferences with the committee.

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Sources of Paper in Japan

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stead of two, as is common with other shrubs. It is a pretty decorative shrub with its characteristic branching stems, broad light green leaves, and delicate yellow flowers which are borne in heads. It is sometimes grown in Japan for its decorative flowers alone. Scarcely over five feet high, it has, as a result of its peculiar branching habit, a characteristic vase form. The light brownish gray bark is thick and lacelike as a piece of tapa, and one can easily spread a bit of it out with the fingers into a web-like rough fabric. Small fruits are borne in clusters, and each fruit contains inside the layer of flesh a shiny black, sharp pointed seed with a thin shell and milk white contents.

In the Provinces of Shizuoka, Nogano, and Fattori are quite extensive plantations of mitsumata, and the areas under cultivation are rapidly increasing.

As a rule the plantations occupy land which is not fit for ricegrowing, such as hill sides too steep for terracing and valleys too narrow to make rice culture practicable. The harvesting is done any time in the winter and consists merely in cutting the plants to the ground, binding them into bundles and transporting them to the farmhouse. From 600 to 2,000 pounds of raw bark is produced to the acre, and when made into pulp is worth in Japan 16 cents per pound in gold, which is four times what the woodpulp from America sells for in Yokohama.

In Japan small paper mills are scattered all over the central part of the country, along the picturesque mountain streams, and the broad drying boards covered with sheets of fresh paper are common sights in many of the mountain villages. The Japan papers are in many respects the most remarkable in the world, and the papers employed by the common people of that country are immeasurably more varied than with us. form one of the important economies in the life of the peasant, and it is such ingenious uses of plant material as this employment of the bark of a shrub that makes it possible for 42,000,000 Japanese to live on the production of a cultivated area about one-third the size of the State of Illinois. The walls of Japanese houses are wooden frames covered with thin paper, which keeps out the wind but lets in the light, and when one compares these paper-walled "doll houses" with the gloomy bamboo cabins of the Island of Java, or the small windowed huts of our forefathers, he realizes that, without glass and in a rainy climate, these ingenious people have solved in a remarkable way the problem of lighting their dwellings and at least, in a measure, of keeping out the cold. Their oiled papers are another important element in the peasant life of the Japanese, and are astonishingly cheap and durable.

As cover for his load of tea when a rainstorm overtakes him, the Japanese farmer spreads over it a tough pliable cover of oiled paper, which is almost as impervious as tarpaulin and as light as gossamer. He has doubtless carried this cover for years, neatly packed away in his cart. The coolies in the large cities wear rain mantles of this oiled paper, which cost less than 18 cents and last for a year or more with constant use. An oiled tissue paper, which is as tough as writing paper, can be had at the stationers for wrapping up delicate articles. Every farm house has its stock of wrapping paper, which has been in use for several years and appears as strong as ever. It has been tanned with the fermented juice of green persimmons and made into "shibugami," which is more impervious to moisture than ordinary paper and much tougher. In the tea factories the piles of paper sacks filled with tea are made of shibugami, and eight-year-old sacks covered with paper patches are a common sight. It is said that these tanned sacks keep the tea in better condition than any other sort, and that they last with careful use for many

years. Grain and meal sacks are always made of this same paper in Japan, for it is not easily penetrated by weevils and other insects. But perhaps the most remarkable of all the papers which find a common use in the Japanese household are the leather papers of which tobacco pouches and pipe cases are made. They are almost as tough as French kid, so translucent that one can see through them and as pliable and soft as calfakin. To the fact that the Japan papers are made from bark they owe their peculiar character. They are as a rule softer, silkier, tougher, and lighter than our papers. Whether or not the methods employed in their manufacture are responsible for the yellow tinge which they always have is a question for investigation.

It is probable that the Japanese acquired the art of papermaking from the Chinese through Korea. The Chinese have made paper from the plants described herein for centuries, and there are in the Imperial Art Museums in Japan Chinese paintings on paper which date back as far as the seventh and eighth centuries. That there are possibilities in the cultivation of the mitsumata plant in the United States is evidenced by the success with which the plant has been grown in the Southern States, and in California.—Raleigh Raines

the Pulp and Paper Magazine.

Some Results in Wood Utilization

INVESTIGATIONS of wood utilization comprise one of the most important lines of work no made by the United States forest service. Timber experts and foresters have found in the study of the lumber industry that the waste of to-day is the byproduct of to-morrow, and that the byproduct to-morrow often becomes the chief product of the da after.

Not many years ago hemlock trees were cut for the bark alone, which was used by the tanneries in the preparation of leather and the trunks were left to deca in the woods. When hemlock lumber was first use for cheap construction purposes it was essentially byproduct of hemlock bark. At the present time, however, hemlock is cut primarily for lumber, and the bark is of secondary importance. Just now, however a new adjustment in hemlock values is taking place because of the recently discovered value of hemlock for paper pulp. The present tendency is to strip the wood bolts; the wood has to be barked before it can be pulped, and the bark instead of being wasted is byproduct for tanning extraction.

At the present time manufacturers are beginning to use sawdust for further regrinding into wood meal awood flour. This wood flour combined with cement is made into a new sort of floor covering which is said to have the advantages of cement and of wood and the disadvantages of neither. Before a long time, however, the sawdust supply may become insufficient to furnish the raw material needed for this wood meal, and sawdust will then become a direct product ground from the wood itself.

The earliest and crudest wood distillation process aimed to secure charcoal alone. All of the other products given off in this distillation—wood acids, alcohols and creosotes—were lost. To-day the charcoal is the least valuable of the products and the others have been developed and refined to a point which has made it more profitable for some timberland owners to cut their woods for distillation products than for lumber

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ent groups a definitely aromatic constitution closely related to vanillin (Czapek) or coniferyl alcohol (Klason). These conclusions have been critically examined in a recent publication ("Researches on Cellulose, "III.), and rejected on the purely chemical evidence, which confirms the statement of Stutzer. But it appears opportune, with special attention again directed to the physiological relationships of these compounds, to point out that, as regards plant life, benzene derivatives play no part in the more permanent cell structures, and, as regards the herbivorous animals, such derivatives or groups are toxic in their actions, and a general distribution in fodder plants, that is, in the higher mass-ratio of tissue components, is excluded.

There is, however, a more recondite problem presented by the distribution of benzene derivative groups in the complex nitrogenous colloids of the organic world. Characteristic constituents of the proteids are groups closely related to tyrosine or oxyphenylamidopropionic acid, and skatolamido-acetic acid. It would appear that these groups may be derived in two ways from the components of fodders: (a) from their proteid constituents, in which case they may exist preformed; and (b) from components of the lignone order which certainly are transitional to the aromatic series, in which case a somewhat more fundamental transformation would be involved. Again, there is a certain distribution of hexose derivatives as characteristic constituents of proteids, e. g., glucosamin and glycuronic acid obtained as products of resolution of the chondromucoids (Schmiedeberg, Arch. Exp. Path. Pharm., 28, 111), which suggests a direct genetic relationship of the saturated carbohydrates of fodder plants to assimilated proteids.

On such grounds it would be interesting to construct working hypotheses for direct and specific investigation of the lignocelluloses in relation to animal digestion, and the building of body tissue. It is not necessary to confine these experiments to a particular form of lignocellulose—wood substance as a condensed dehydrated complex is an extreme form, and probably resists entirely the digestive process (Landw. Vers. Stat., 1912, 78, 87). Hydrolysed by the Classen treatment it becomes more or less assimilable (ibid.). But there are processes of hydration available by which the wood substance may be converted into a permanent colloidal hydrate which at 2 to 3 per cent solids is a jelly-fodder much appreciated, we are informed, by the Suidas of which more particularly Sus scrofa! Again, the plant world supplies natural colloid-hydrate forms of the lignocelluloses, as, e. g., the pectin of the white currant (*Lieb. Ann.*, 286, 278; *Berl. Ber.* 28, 2609, Tollens-Cross) which would be available for experiment at certain seasons. But there are multitudinous raw materials which could be selected and suitably prepared in relation to systematic inquiry which is much needed in this direction.—C. F. Cross in The Chemical World.

Possessing a large quantity of papermaking woods, British Columbia affords a promising field for the papermaker. Pulpwood forests border the ocean and many navigable waters, simplifying transportation, and there are numerous waterpowers to supply motive power to the mills. The Canadian Engineer is convinced that the rapid denudation of the pulp areas of the United States will soon compel it to look to Canada for its supply of woodpulp which, according to the regulations now in force. must be manufactured in the province. There is, besides, a present demand for pulp in Japan, China and Australia, and when the industry is fairly developed, the ocean freights will enable profitable exportation to Great Britain and Europe.

Cellulose from Vine Shoots

IN a recent issue of Paper, brief reference was made to the utilization of the shoots pruned from grape vines, for the manufacture of cellulose for use in papermaking. The project has been made the subject of careful research at the French school of papermaking at Grenoble and as a result of the investigations a French patent has been issued to Messrs. Chaptal and Gaïsset, for a paper pulp obtained from vine shoots and its process of manufacture.

According to the description forming part of the patent, the shoots, either green or dried are cut into pieces of 3 to 4 inches in length and washed, with plenty of water in a vessel with perforated walls, to remove earth and dust. They are then treated in a cooker with caustic soda solution of 70° Baumé, for 24 hours, under a pressure of six atmospheres. A thorough washing in clean water in a washing beater follows, to remove the residuary lye, the cellulose being subsequently bleached with hypochlorite of soda. From this pulp alone, or mixed with other pulps white paper can be made.

Samples of paper in the following proportions have been made at the Grenoble institutions:

een	made at the Grenoble institutions:	Part
A.	Vine shoot cellulose	75
	Bleached bisulphite cellulose	25
	-	
		100
В.	Vine shoot cellulose	63
	Bleached sulphite cellulose	37
		100

In addition a vine-shoot paper was made for experimental purposes by students at the institution with 63 parts of sulphite cellulose and 37 per cent of vine-shoot cellulose, which is pronounced by *Le Papier* as of superior quality.

At the suggestion of the Agricultural Association of Lezignan, Department of Ande, France, contributions were collected in the departments of Ande and Herault for the establishment of mills for the manufacture of cellulose and paper from vine shoots.

Special plants were to be established for the production of the cellulose and others for making the paper. The formulas A and B were specially compiled with reference to the requirements of the Agricultural Association. But it was expressly provided that the shoots of dark colored vines, or such as were attached to the trellises by means of iron wire, in place of by twine, should not be used. The plants were to be established in the vicinity of railroad stations and at a central point, as regards vineyards, but on a river. It is hoped that in the districts of Beziers and Narbonne, 15 to 20 such plants, will in a short time be established, with a daily output of four tons of cellulose. It is expected that a circuit of at most three miles will supply the shoots for these plants and as they are classed by the railroad as "fire-wood" the freight charges on their transportation will be quite low.

M. Chaptal has figured that in one year the French vineyards yield vine-shoots, equivalent to the pine wood grown on 1,149,000 acres.

If, as the experience of the French papermakers indicates, the vine-shoots can be made to furnish a desirable cellulose, with which inconsiderable proportion, a really good paper can be produced, it will pay to look after this material as a factor in reducing the ever-increasing demands on our precious forests.

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PAPER

A Weekly Illustrated Journal of Information on the Manufacture, Uses and Sale of Pulp and Paper

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Paper Trade With Canada

Present Status of the Tariff Under Section 2

O extraordinary and complicated are many of the features of the law under which pulpwood, pulp and paper are now being brought into the United States from Canadian territory, that many well informed people—among them some manufacturers of pulp and paper—appear to have more or less misapprehension in regard to the situation.

We are desirous, therefore, of stating as briefly as we can what changes have taken place in the statutes governing these importations within recent years, and what the result is at the present time.

Shortly after the enactment of the McCall billotherwise known as the reciprocity measure—in 1911, by the Federal Congress, that portion of the measure designated as "Section 2," relating exclusively to the importation of pulp and paper, was put into immediate effect, without awaiting the action of the Canadian Government. This, it was construed, could be done because Section 2 fixed no obligation whatever upon Canada, but consisted entirely of privileges granted by this country; therefore, its ratification by the Canadian Government was deemed unnecessary; the rest of the measure, which would require certain concessions to be made by Canada, being necessarily held in suspension until that Government could either approve or reject it.

Later, it will be remembered, the people of Canada did—at the polls—refuse to ratify the international agreement. We were then left in the position of that portion of the law which was favorable to Canada being effective, while the portion which required Canadian concessions was left, and is yet, inoperative.

Section 2 reads as follows: -

Pulp of wood mechanically ground; pulp of wood, chemical, bleached, or unbleached; news print paper, and other paper, and paper board, manufactured from mechanical wood pulp or from chemical wood pulp, or of which such pulp is the component material of chief value, colored in the pulp, or not colored, and valued at not more than four cents per pound, not including printed or decorated wall paper, being the products of Canada, when imported therefrom directly into the United States, shall be admitted free of duty, on the condition precedent that no export duty, export license fee, or other export charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise), or any prohibition or restriction in any way of the exportation (whether by law, order. regulation, contractual relation, or otherwise, directly or indirectly), shall have been imposed upon such paper, board, or wood pulp, or the wood used in the manufacture of such paper, board, or wood pulp, or the wood pulp used in the manufacture of such paper or board.

At the time of the passage of this Act, the exportation of the timber grown on all Canadian lands to which the title was vested in the Government, commonly termed "Crown lands," was absolutely prohibited, excepting that small portion of British Columbia lying east of the Cascade range. The only pulpwood which could be purchased and brought into the United States by our domestic paper manufacturers was that which might be procured from what is known as "freehold lands," or such lands as the title to which had become vested in individual holders. Certainly not more than 10 per cent of the available timber is grown on the latter class of lands.

The advocates of the reciprocity measure, at the time it was pending before Congress, justified Section 2 upon the ground that, in order to get free access to the American market for Canadian paper, manufactured from Crown land wood, it would be necessary, under the provisions of this Section, to remove the export prohibition, thus enabling the American manufacturer to procure Canadian wood for use in American mills.

It was never contemplated, of course, even by the most ardent advocates of the bill, that any release of export restrictions would be limited to particular tracts of woodland, but it was naturally presumed that release when made at all, would certainly extend to all the Crown lands, included at least in one of the Canadian provinces.

To the amazement of all Americans, announcement was sometime ago made that the export restrictions had been removed from that particular timber, the rights to which had been granted to the Powell River Company. this being located in British Columbia.

Later, in the early part of January of this year, the Provincial Council of Quebec announced that it had likewise removed the export restrictions upon the pulpwood grown upon Crown lands in that Province. formerly ceded to four companies manufacturing paper, whose mills were located in Quebec, viz., Laurentide, Belgo-Canadian, Wayagamack and Price Bros., with

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HE WEEK'S LATEST TRADE N

"Movies" of Accident Prevention to be Shown

What promises to be a very attractive and interesting feature of the annual meeting of the American Paper Pulp Association is an exhibition of moving picture films of accident prevention in mills and factories. The show, which is to be supplied by the National Association of Manufacturers, will be given at 2 o'clock on Thursday afternoon, immediately after luncheon. It will be something new in the way of an ocular demonstration of the safety appliances used in factories.

Decrease in Stock of Newsprint Paper

[SPECIAL TO PAPER]

WASHINGTON, Feb. 10 - A decrease of 3,652 tons in stocks of newsprint paper in December 1912, is the feature of the report of the American Paper and Pulp Association to the Commissioner of Corporations announced to-day. Stocks at the end of the month were reduced to 39,852 tons, compared with 27,640 tons in 1911. Stocks have steadily declined since September.

Production for December 1912, was 102,118 tons, a decrease of 4,597 tons from November. Shipments were 105,728 tons, a decrease of 4,073 tons.

Importations of printing paper suitable for books and newspapers during December, 1912, amounted to about 10,960 tons,

of which more than 97 per cent came from Canada.

In other grades, board paper showed a large decrease in production and shipments, stocks remained practically stationary.

The returns for newspaper for each month of the year 1912

are summarized in the following tables:

Month	Com- pan- ies	Actual output per day	Production	Shipments	On hand add of month	Per- cent of	cent ship-
	re- port- ing		т	ons		mal	
January	51	4,043	109,163	110,122	26,303	96	101
February	51	4,029	100,714	102,422	24,795	96	102
March	50	4,099	106,582	105,387	27,638	98	99
April	50	4,120	107,132	110,741	25,489	98	103
May	50	4,313	116,460	115,568	26,477	101	99
June	50	4,298	107,457	103,102	36,421	100	96
July	51	3,927	102,097	98,862	40,441	90	97
August	51	3,925	105,980	100,752	45,988	90	95
September	51	4,062	97,486	95,370	47,231	93	98
October	51	4,036	108,964	109,777	46,511	92	101
November	51	4,104	106,715	109,801	43,504	94	103
December	51	4.085	102,118	105.728	39.852	98	103

MONTHLY IMPORTATIONS OF PRINTING PAPER FROM CANADA DURING 1912

	Total	Free of duty	Subject to duty
	Ir	tons.*	
January	4,868	3,016	1.852
February	4,224	2,628	1,596
March	4,746	3,450	1,296
April	4,925	3,994	931
May	4,432	3,735	697
June	5,402	2,961	2,441
July	5,756	4,050	1,706
August	7,333	5,427	1,906
September	10,850	8,350	2,500
October	10,418	8,117	2,301
November	10,997	8,736	2,261
December	10,679	8,099	2,580
Total	84,630	62,563	22,067
For same period, 1911	54,485	12,229	42,256

^{*}Reduced to tons of 2,000 pounds by Bureau.

The Late Arthur Schoellkopf of Niagara Falls

SPECIAL TO PAPER

NIAGARA FALLS, Feb. 10 - The intelligence of the death in Miami, Florida, on February 3, of the Hon. Arthur Schoellkopf, a former mayor of this city and the head of the Hydraulic Power Manufacturing Company, which was given in PAPER for February 5, was a severe blow to all who knew the distinguished citizen. Mr. Schoellkopf had been in ill health for some time and sought relief in the southland some months ago, and it had been for a week or more known to those closely associated with him that his end was near.

Mr. Schoellkopf was born in Buffalo, June 13, 1856, the son of Jacob F. and Christiana Schoellkopf, highly esteemed citizens of the town at the head of Lake Erie. One of a large family, Arthur was sent to his father's native town in Germany to study. After a four year's stay abroad he returned to Buffalo where he completed his education. For a number of years he devoted his attention to acquiring a knowledge of the flour business. In the meantime his father had acquired the hydraulic canal here, and in 1877 the younger Schoellkopf was sent to Niagara to superintend the construction of a power developing plant.

Mr. Schoellkopf became actively engaged in the business of the city, successfully carrying on the flour mills in the early village days. His activities were not confined to this particular line. for he built the first street railroad here, and was the first president of the Power City Bank, when that institution was organized in 1893. For many years he was president of the International Hotel Company.

At the time of his death, Mr. Schoellkopf was president of the At the time of his death, Mr. Schoelikopi was president of the Cliff Paper Company, president of the Niagara Falls Milling Company, president of the Gluck Realty Company, first vice president and treasurer of the Hydraulic Power Company, a director of the Cliff Electrical Distributing Company and of the Bank of Niagara. This list by no means comprise all the interests with which the deceased gentleman had associated himself.

He are displayed a lovel interest in the welfare of the com-

He ever displayed a loyal interest in the welfare of the community. While never seeking preferment in the political world, all parties were eager to have him on some of the municipal boards. He was elected mayor in 1896, and his administration was a successful one.

Mr. Schoellkopf was a member of the Civic Club, the Niagara Club of this city and the Ellicott Club and Germania Club of Buffalo. He was a devoted worshipper at the First Preshyterian church.

Mr. Schoellkopf was married to Miss Jessie Gluck of this city on October 13, 1880. There were two children, Beatrice and Paul, born to the marriage, both of whom survive and are married.

As soon as news of the death reached here, Mayor Laughlin sent a letter of condolence to the bereaved family at Miami, and ordered the flags on the municipal buildings to half staff. The flag over Company E's armory was also kept at half staff, Mr. Schoellkopf being a past president of the organization's veteran's association.

THE FUNERAL SERVICES

The funeral was held from the First Presbyterian church Thursday afternoon, burial being in a vault in Oakwood cemetery. It is likely the remains will be removed later to Buffalo

where the Schoellkopfs have a family plot in Forest Lawn.
The late Mr. Schoellkopf's beneficiaries are many. world may never know the full extent of his generosity, for many of his kindly acts were done sub rosa, and remained a secret between himself and those benefited. Here is an instance of his benefactions.

A GIFT TO THE CITY

This city is without a park system. On March 12, a tax election was to have been held for the purpose of ascertaining the wishes of the people on a proposition to pay \$43,000 for two sites as a nucleus to a park system. In the Schoellkopf will is a gift to the city of the two very sites to be voted upon. In addition the planting and grading of the sites is provided for. The tax election is off. This bit of information did not leak out until several days after the demise of the philanthropist. Surely the city of Niagara Falls has reason to ever remember one of her most noted citizens.

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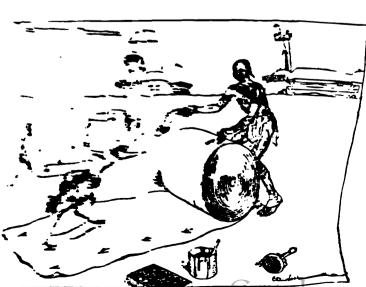
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THE MANUFACTURE OF WALLPAPER IN AFRICA

Exit Roller Towel, Hail Paper Novelties

SPECIAL TO PAPER

DAYTON, O., Feb. 10-Days of the common roller towel and the common drinking cup, excepting with almost prohibitory restrictions, are ended in Ohio and both are now in the outlaw restrictions, are ended in Ohio and both are now in the outlaw class. This is a matter of more than passing interest to the paper and paper novelty makers throughout the state and the business along these lines has grown substantially as the result of the recent legislation. By the terms of the resolution adopted by the State Board of Health, it is decreed that cars, vehicles, vessels and conveyances shall not be supplied with drinking cups and that no school, church, hotel or public building shall provide any drinking cup, glass or vessel unless those cups or other receptacles be thoroughly cleaned by washing in boiling water after being used by each individual. As to the roller towel, it is provided that no public conveyances or schools, churches. is provided that no public conveyances or schools, churches, hotels or public buildings shall provide any towel for use by more than one person unless the towel be sterilized in boiling water after having been used by each individual. While there are clauses in each of the two resolutions bearing on the subject, which make the use of the drinking cups and roller towel per-missible, yet the conditions under which this particular practice can be continued are so stringent and exacting that it practically means the end of both.

Mount Holly Mill Again in Operation

[SPECIAL TO PAPER]

YORK, PA., Feb. 10—The lower mill of the Mount Holly Paper company, at Mt. Holly Springs, Cumberland county, which was recently sold at receiver's sale, has resumed operations. This is the largest mill of the company and the purpose for starting up, it is said, is to finish the present stock. The mill will be operated for several weeks, at least, and about 100 persons will be given employment. John Z. Steese is in charge of the plant. Many who formerly worked in the mills have now received other positions and some have left the town. Still, the fact that operations have been resumed is good news to more than one family and to the business institutions of that thriving little town.

MR. GLATFELTER'S NEW HOME

The mansion being erected by William L. Glatfelter, president of the P. H. Glatfelter Paper company, Spring Grove, near that town, is fast nearing completion. Hundreds of persons from this section of the state visit the place every week to view the home. The suburban residence, when completed will be one of home. The suburban residence, when completed will be one of the largest and most expensive in this part of the state. All the work on the building has been done by the best mechanics in the East. Between 20 and 30 skilled carpenters, artists and designers from New York City and Philadelphia are now at work on the interior of the mansion. The large garage was completed last summer. The macadamized road through the large terrace which is in the shape of a "W" was also finished during the summer. Flower beds have been planted on the large grounds surrounding the home and along the driveways. The homes for the gardner and the chauffeur, located along the road, are for the gardner and the chauffeur, located along the road, are nearing completion. A lodge will be erected near the gate entrance for the accommodation of the superintendent of the grounds. Janufacturer of Victory Pulp Screen Dead.

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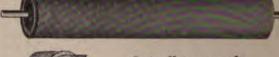
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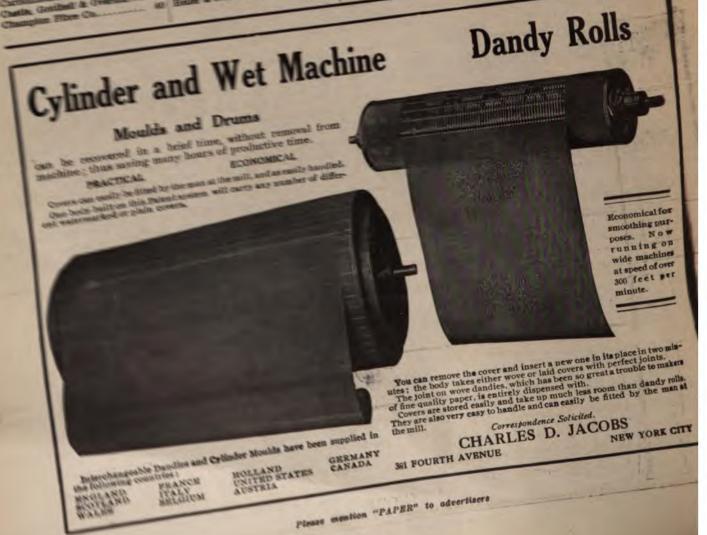
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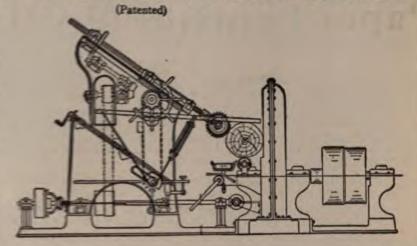
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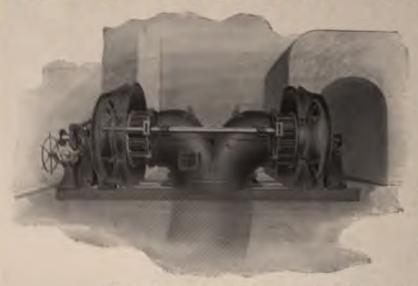
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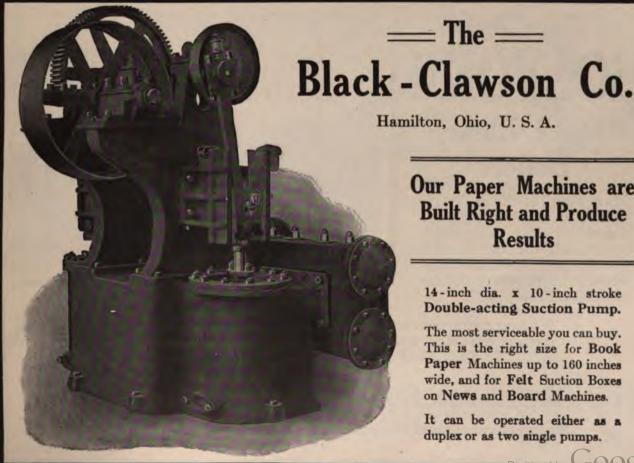
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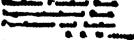
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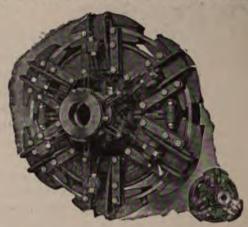
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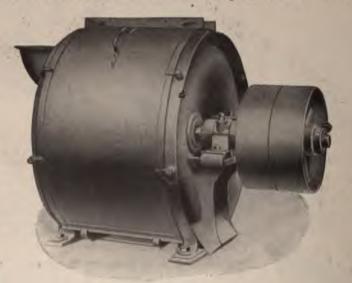
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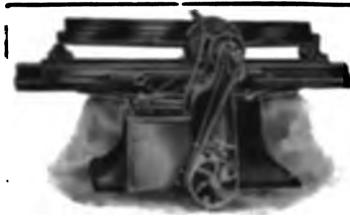
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Determining the Quality of Pulp Material

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although they may in the main find their way into the finished sheet and so yield him what he desires, in so far as weight is concerned, it is certain that the product will not be so strong as it would have been had the raw material been better prepared. Neither will it stand the test of time so well, for these inferior and modified celluloses are not so resistant to attack, either chemical or mechanical, as are their parent substances.

It therefore appears that although a given material may be considered of standard value so far as the nature of the fibers is concerned (i. e. containing 100 per cent of cotton, flax, wood, etc.), and although it may seem a desirable product so far as cleanliness and color count,

yet it may be in actual quality, inferior.

Thus the necessity arises for a method of examination for the presence and quantitative estimation of these inferior bodies, in order that the true condition and value of the stuff may be determined. Different chemical reactions, such as the reduction of alkaline copper sulphate (Fehling's solution) with the deposition of red cuprous oxide, or the selective dyeing properties of the fibers when in contact with such dyes as methylene blue form valuable indications, but the method to be recommended as being most convenient and easy of application is based upon the fact that these bodies are soluble in caustic soda. Care must be exercised in deciding what shall be the strength of the soda solution to be used, and what temperature shall be employed, but as the method is essentially one of comparison, so long as conditions are kept constant when different materials are examined, hard and fast figures are not very necessary. It is, however, best not to use hot solutions above about 5 per cent NaOH concentration. The value of the material will naturally be inversely proportional to the loss of weight occasioned by the treatment. Perhaps the best conditions for the test are those recently suggested by Cross and Bevan, of London, who consider that digestion with cold, strong, caustic soda (15 per cent NaOH) should be practised. A known quantity of the material under examination is made into a paste with about five times its weight of the soda solution, and allowed to stand for, say, 30 minutes. The pulped mass is then diluted with cold water, filtered and washed. To the filtrate and washings which contain the soluble bodies, acetic acid is added in slight excess and the whole heated until any reprecipitated bodies coagulate sufficiently to allow of filtration. They are then collected, washed with water, dried and The residual fiber on the filter is also acidified with acetic acid, washed, dried and weighed.

The figures thus obtained will show:

Cellulose resistant to the soda.

(b) Modified cellulose, soluble under such treatment, but reprecipitated by acid.

(c) Cellulose further modified, which remains in solution.

An estimation of moisture should be made in the original material by drying 5 or 10 grammes (75 to 150 grains) at 100°C. Then after the necessary correction to allow for this moisture has been made in computing. 100 less a+b will give the figure for the soluble (C), or 100 less a+b+% of water = C. By this method the writer found that a sample of high class cotton cloth yielded 100 per cent resistant cellulose "a" calculated on the dry material, a cotton filter paper probably made from rags showed 96 per cent "a" with nearly 4 per cent of "b" and only traces of "c," while a rag pulp on the market as a papermaker's half-stuff yielded 89 per cent "a", 8.5 per cent "b", and 2.5 per cent "c". The value of the materials are in proportion to the percentage of "a". It is probable however that most of the reprecipitated cellulose "b" will find its way into

the paper so that a careful consideration must be given to the relative proportions of a:b:c. A pulp yielding, say, 100 per cent of "a" would be better than one made up of, say. 95 per cent "a" and 5 per cent "b".

In working on woodpulps it was found that in a series the highest percentage of resistant cellulose obtained was 87.5, while some were much lower. This is probably due to the fact that wood cellulose is chemically different from cotton cellulose which may be considered as the standard and best of the fibers from a chemist's point of view. It is most likely the case that the best prepared woodpulp would yield a fair proportion of the soluble derivatives "b and "c," and, as is the case with the systematic examination of all such raw materials, a figure must be decided upon which is to be accepted as a standard, and all others compared to it. The other factors which influence the value of fibrous materials are the proportions of mineral matter (ash) yielded on ignition, and the resinous or fatty bodies yielded by the ordinary methods of extraction with organic solvents. Both of these should be kept as low as possible. It is to be feared that the importance of keeping raw materials free from "ash" is not sufficiently recognised. It is here that in many classes of paper, a certain amount is not only permissible but desirable in order to increase opacity, etc. Yet it should be borne in mind that even in such cases, when working to specification, complications may arise through slackness in this direction. Thus if it is required that a finished paper should contain not more than a given percentage of mineral matter, the manufacturer will undoubtedly add sufficient to the engine to yield that amount, so that the quantity contained in the original half-stuff will be in excess of that permissible. It will be readily recognised that should that quantity be considerable an awkward position might well arise for the papermaker.

Further it is to be noted that the presence of most classes of mineral matter in any quantity is to be counted undesirable in blotting papers since they affect

in a marked degree the absorbent qualities.

It is also in the manufacture of blotting papers that resinous or fatty bodies are most objectionable. It is sometimes found that such papers made at different times from precisely the same class of fibers and under similar conditions of beating, etc., yield different results, an inferiority on the absorbency test being very marked. This can occasionally be traced to the presence of these resinous or fatty bodies in the rag-Being insoluble and water-resistant they make rapid absorption of water or ink practically impossible. When difficulties arise from this source the remainder of the stock should be given a smart alkaline boil, which will saponify the bodies, forming soluble soaps which will be got rid of by washing.

A careful systematic study of all fibrous materials on

the lines suggested by these notes would furnish the papermaker with a wealth of valuable information, and the standardisation of all his products which would naturally follow would more than repay him for any apparent but not very real trouble that he was oc-

casioned.

A proposition emanating from the Russian paper industry, to impose an export tax on pulpwood exports, has been rejected by the finance department, on the grounds that Russia possesses such immense resources in wood adapted for papermaking, that the exports cannot have any appreciable effect on the domestic prices of paper. The decision is received with considerable satisfaction by German paper and pulp manufacturers who obtain much of their pulpwood from Russia.

Milkweed as a Source of Paper

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In the process of papermaking, the author is indebted to Dr. Otto Kress of the Industrial Laboratory, for his valuable suggestions and services; liberal use was made of the new papermaking machinery recently installed in that department through the efforts of Professor M. C. Whitaker.

The author's sincere thanks are due to Professor Marquette, Department of Botany, Columbia University; Dr. N. A. Cobb and Dr. Brand of the U. S. Bureau of Plant Industry, Washington, and to H. T. Güsson, Dominion Botanist, Ottawa, Ontario, for their valuable suggestions and references.

After the publication of the programme for the meeting, Wm. Haskins of Chicago, Ill., wrote to the effect that milkweed and the allied plants, Calotropis procera and Calotropis gigantea, of India, had interested him considerably for a number of years. His correspondence was put at the author's disposal and a most interesting English patent was found; English Patent, A. D. 1885, No. 11,561, granted to Dr. George Kassner of Breslau, Germany, for "Improvements in the process or manner of manufacturing caoutchouc, wax, fat, vegetable fiber, fiber wood, etc., from lactucarious plants." Among the plants containing milky juice Asclepias was included.

The possibilities of starting a new industry relying on the wild plants solely as the supply is indeed problematic, so that some system of cultivation and harvesting would have to be relied on to supplement the vast amount of the wild plant. The fact that one species can be grown on dry soils unsuited for other crops, and that another species can be grown on wet soils, presents a new profitable crop for some of our dry or wet soils which are now of little use.

Work is still in progress on this subject, and extended work will be undertaken during the coming summer and fall.

Volume Composition and Porosity of Paper

IN a recent contribution Messrs. Sindall and Bacon, the English authorities on papermaking, gave some details of an instrument devised for measuring the porosity of paper, that is, its capacity for allowing air to percolate through a sheet of given area in a given time. This function of paper clearly has a close relation to the volume composition of the paper.

relation to the volume composition of the paper.

In The Papermakers' Monthly Journal for December 16, 1912, it is shown that the ratio of fiber volume to the total volume of paper is a factor which frequently needs consideration in studying the physical properties of paper. Its value is now recognised as it affords information of a definite character which is particularly useful in systematic records of successive makes of the same paper, or in determining the effect of alterations in manufacture.

The volume composition of a paper may be considered not only in regard to porosity, but also in respect to substance or bulk. The advent of light bulky antiques to trying to the printer and publisher, to say nothing of the bookbinder, opens up an interesting field of investigation. The precise effect of processes of manufacture such result in the production of papers of an entirely different character, viz., heavily loaded imitation art, and the surface coated genuine art papers, are also matters which deserve the attention of those engaged in the application of paper to commercial uses.

The measurements required and the tests which need who made for the calculation of volume composition are

in most cases of a simple character, especially for pure papers. The most frequent example would be a paper made of a blend of two or more papermaking fibers together with a mineral loading and a small proportion of engine sizing.

With art papers, the larger number of ingredients renders a more complete analysis and consequent cal-

culation necessary.

The analysis would involve For an ordinary E. S. paper—

- 1. Percentage of mineral matter.
- 2. Nature of mineral matter.
- 3. Rosin.
- 4. Fiber (by difference).

The rosin present only needs to be taken into account for hard sized papers.

For an Art paper—

- 1. Percentage of various mineral ingredients.
- 2. Nature of mineral ingredients.
- 3. Adhesive used in coating, per cent.
- 5. Fiber (by difference).

As an art paper may contain china clay in the body and blanc fixe in the coating, then the ingredients should be measured.

The measurements of the ordinary E.S. paper are, however, more frequently useful, and these may be considered in detail.

The following scheme reduces the experimental work and the calculations required to the simplest forms, Experimental Work.

Weight. Grams per Square MetreG.
Thickness. Millimetrest.
Tensile Strength. Machine direction, Gramsa.
Tensile Strength. Cross direction, Gramsb.
Bursting Strain. Grams per Square Centimetre B.
Percentage of Mineral matterm.

Calculations.

Mean Tensile Strength
$$W = \frac{a \div b}{2}$$

Breaking Length. Metres...... 100W ÷ G. Breaking Weight per Square

Millimetre of sectional area W ÷ 10t. Bursting Strain for paper of substance,

100 grams per Square Centimetre....100B \div G.

Volume Composition.

(1)Grammes per Cc.

Paper =
$$S = \frac{G}{1000t}$$
.

$$\begin{array}{lll} \text{Ash} & = & (\text{Sm} \div 100). \\ \text{Fiber} & = & \text{F} = (\text{S} - \text{A}). \end{array}$$

(2) Volume Composition.

$$Fiber = \frac{F \times 100}{1.5.}$$

$$\Lambda sh = \frac{A \times 100}{2.5}$$

Air Space =
$$100 - (Fiber + Ash)$$
.

These calculations are based on the presence of practically negligible quantity of rosin and on the mineral matter being mainly china clay.

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Electric Drive for Supercalenders



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current is used in nearly all paper mills, and the simplicity and reliability of the induction motor makes its use for calenders almost universal. The wound rotor type of motor is required, since, as above outlined, it is necessary not only to have gradual acceleration but often to slow down and accelerate again at intervals.

The two motor drive as shown in Fig. 2, has been very widely used and meets all of the operating characteris-



FIG. 1-ROTARY CUTTERS, MOTOR DRIVEN

tics as outlined above. The threading-in speed is obtained from the small squirrel-cage motor through several gear reductions, and gradual acceleration is obtained by properly operating the controller of the large motor. By means of the controller, the speed of the calender can also be quickly reduced to allow the safe passage of weak spots or rough edges. If desired the controller and resistance can be so designed that continuous operation can be obtained at reduced speed, but unless a large variety of stock is run, the maximum speed can always be used.

In Fig. 3 is shown a single-motor drive in which the threading-in speed is obtained from the main motor by means of a clutch and gear reduction. The oper-

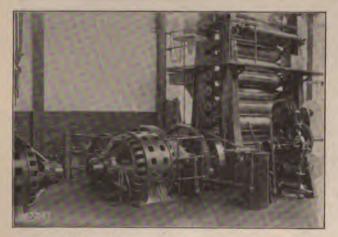


Fig. 3-HOLYOKE MACHINE CO. CALENDER. ROTOR MOTOR

ating conditions and first cost are practically the same for the two-motor drive, except when the calender is run at the low speed for a considerable time. Under the latter conditions the use of a small motor is more economical.

e power required to drive a calender depends pally upon the number and width of rolls, the , the stock calendered, and the method of handling; each proposition should, therefore, be carefully investigated before motors are applied.

The rotary cutters in the finishing mill are often driven in groups, but Fig 4 shows an individual motor drive in which a speed range of 3 to 1 is obtained. It is averred that by having this speed control, maximum production for each weight and grade of paper can be obtained.

Anchor Ice Dissipated by a Simple Remedy

THE importance of keeping water and turbine wheels free from icc, so that work may not be interrupted in large factories, has led Howard T. Barnes, professor of physics at McGill University Montreal, Can., to study the method of formation of frazil and anchor ice with the view to finding some remedy for the many annoyances that it causes in the cold winters of Canada (and to a less degree in many parts of the United States).

It has long been recognized that the rising sun brings speedy relief to hydraulic plants that are frozen up with frazil. Experience had also shown that water wheels

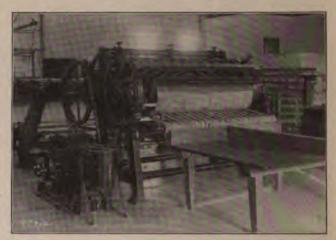


Fig. 4-HAMBLET CUTTER. DIRECT CURRENT MOTOR

protected by wooden racks were better able to withstand frazil than those protected by iron racks. The fact is that the water when just at the freezing point needs only to be cooled the hundredth or the thousandth part of a degree Fahrenheit in order to turn into hard ice, and that, too, in a very few minutes. Vice versa when machinery is frozen up in frazil the latter will quickly turn back to water by the application of a little heat in the form of steam if properly turned on. By waiting several hours the ice may become as hard as stone, but the prompt application of steam will work marvels.

The St. Lawrence River water remains just at the freezing point nearly all winter wherever it is flowing rapidly, but it makes frazil in quiet places and after sunset, or above such a waterfall as Lachine Rapids. On the other hand, warmth of sunlight or the warmth produced by rescending rapids is sufficient to dissipate the frazil, although the change in temperature is only a few thousandths of a degree. A very small boiler of water and a ton of coal will generate enough steam, if led by pipe to the water that is about to enter a turbine, to give the water the slight additional warmth necessary to protect it from frazil.

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Vol. X

FEBRUARY 19, 1913

No. 10

Annual Meeting A. P. & P. Association

THIS is the week of the annual round-up of the American manufacturers of pulp and paper Not all of them, it is true; for strange as it may seem, some have not yet become wise to the importance of belonging to the association, and are still struggling along either without sharing the benefits of intelligent cooperation, or at least without sharing its cost.

In a general way there is no domestic producer of any grade of paper who is not today in a better situation on account of the existence of the American Paper and Pulp Association and the work it has accomplished in behalf of the industry. That being true it is only fair that all should become members and thus distribute more widely the expense of its maintenance. The larger the membership, the less the cost to each member, also the greater the possible efficiency of the organization. It is our sincere hope that before the next annual meeting comes round every manufacturer will have fallen into line.

There are many desirable things, it is true, which the association has not done, some things it has tried to do and failed; but on the whole its efforts have been in the right direction and it has succeeded remarkably well. It could have done more and could have done some things better, perhaps, if everybody in the business had given it the loyal support that some have reserved.

And, after all, perhaps, the association is no more helpful on account of the things it actually does for us than on account of the things it prevents being done

Within recent years the paper industry has been the favorite object of attack from so many different sources

that we have been obliged to expend a large measure of our energies in defensive action. In this direction the assistance of the association has been timely and material.

We congratulate President Hastings on the faithfulness and efficiency of his labors, and bespeak for him a wider support and consequently a larger measure of usefulness in the year to come.

In accordance with our custom we have not held back this week's issue of PAPER in order to include a full report of the association's proceedings. Next week will be time enough. The good things will save and the rest we do not care for.

To all who have, or shall be in attendance at any of the meetings, PAPER extends a cordial greeting and the sincere wish for a full measure of prosperity

Immigration Bill Vetoed

RESIDENT Taft has vetoed the immigration bill which was recently passed through both houses of Congress by large majorities, and now the effort will be made to enact it over the veto. Judging by the vote already taken it is altogether likely the measure may yet become a law; the House having favored it by 179 to 52, while in the Senate it was approved by a vote of 56 to 9.

In spite of the overwhelming decision of Congress, we nevertheless approve the President's veto. The bill, for the authorship of which Senator Lodge, as chairman of the Immigration Committee, was largely responsible, contains many excellent provisions; but was objectionable to the President on account of its establishment of an illiteracy test.

Secretary Nagel states the case correctly when he says America needs most the very labor that would be excluded by the illiteracy test, because our natives are unwilling to do the work which the illiterate alien comes over to do.

This country can not be too particular, it is true, about the exclusion of the vicious and depraved classes who are so much inclined to come to our shores. cannot keep the moral standard of our citizenship too high; but it must be admitted that the element most dangerous to society—whether among the native born or immigrant classes— is not the illiterate. Ordinarily the unlettered man is an humble toiler, who is content to perform a menial service, as necessary as it is unattractive. It is not such persons the country has to fear. The agitator, who cries out against our laws and our American institutions, and spends his time in an endeavor to create an unAmerican sentiment, is usually an individual of more or less education.

It is not that we are opposed to education and prefer illiteracy; but we are opposed to closing our doors against the people who are willing to do the work we so much need to have done, for the sole reason that they have had no educational advantages.

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THE WEEK'S LATEST TRADE NEWS

Banquet of the Philadelphia Dealers

[SPECIAL TO PAPER]

PHILADELPHIA, Feb. 16-The Rose Garden of the Bellevue-Stratford was the scene of a notable gathering last Friday night, when 350 members, and friends of members, of the Philadelphia Paper Trade Association, held their ninth annual banquet. The National Paper Trade Association was well represented by officials of that body, as well as many of their members from neighboring cities. Leon Beck, the president of the local organiration, presided, and toasts were responded to by John Leslie, president of the National Paper Trade Association; and R. P. Andrews, the national treasurer. Local speakers were Assistant District Attorney Joseph P. Rodgers, and Edward J. Cattell, City statistician.

Mr. Leslie, in speaking of the scope and purpose of the organization which he represented, said in part:

"The idea we first had when we got together in the West was entirely to set up a fortress against the attacks of the manufacturers upon our preserves. The manufacturers seemed to have the knack of coming into our markets and selling to the consumer, and then going into another market and selling the jobber. We thought that was a condition that should not exist, and we started out with the idea that to remedy that condition was to be our principal business. We did not have to go very far, however, to learn that the manufacturer, instead of being against us in the West, as well as in the East, was our friend, and that it was to the interests of all concerned to treat him as such.

"As our views became larger, we began to think of the improvement of prices as something that might profitably be done, but then the local associations took a hand, and gave us a few examples, and we concluded that that was not what the rest of the examples, and we concluded that that was not what the rest of the citizens of the country desired, so we finally decided that the object of the association should be the purpose which I understand is the main pillar of this association, and that is, a closer tieing together by the bonds of sympathy of the membershipand the interchange of business ideas, which is usually successful in uniting any body of men. We have the same difficulties to overcome, West and East, and we sometimes have to go outside of the organization to learn how to overcome those difficulties. In the rest ter of figuring costs, which the rational associations are successful. ties. In the matter of figuring costs, which the national associa-tion has taken up, it has succeeded in producing some very favorable results.

Mr. Andrews was the next speaker, and he dwelt on the bene-

Sts of organization. He said:

"We do not appreciate the importance of or the value we derive from association. The mere fact of organized strength has done wonders for us all. By its organized strength, the national association, of which this Philadelphia association forms a part,

has been able to prevent a great many of the abuses of the trade, which otherwise would have been forced upon us.

"There are many mills throughout the country, which, without the restraints imposed upon them by the association, during the the restraints imposed upon them by the association, during the stack periods of the year, when orders are scarce, would go after that business and accept that business, either through the jobber or direct, if it were not for the fact that the city in which they are located had a paper trade organization, and so they think twice before they take that business, and that, I think, is one of the strongest reasons for the future loyal support of the national association.

Mr. Rodgers, in a humorous speech, advised the members of the Philadelphia Association, as well as those of the national association to keep within the pale of the law in all instances, and said that these were days, when it was extremely risky to break the laws, as had recently been evidenced by the conviction of the National Cash Register officials.

Mr. Cattell in a forcible address, told the paper manufacturers and jobbers not to be afraid that another panic was coming to this country because of a change in national politics. He said he believed that the country had now grown so great, that no panic could be precipitated by any political party, or any body of men, and that what would have caused a tidal wave on the political waters twenty-five years ago, would today cause little more than a ripple on its surface.

According to Farmand of Jan. 25, the ground wood market is very quiet. Buyers stay away from the market, though large quantities are as yet uncovered, in an effort to force prices down. The closing of the Baltic may perhaps bring some more activity to the market. Chemical is quiet but prices keep steady.

News of Northern New York Mills

[SPECIAL TO PAPER]

WATERTOWN, Feb. 17-John C. Knowlton, who for forty years WATERTOWN, Feb. 17—John C. Knowlton, who for forty years has been connected with the city water board of which he has been the president for twenty-seven years, was a few days ago elected president of the board of trustees of the Roswell P. Flower memorial library, of which he has been a member since the establishment of the library. Mr. Knowlton is one of the oldest paper manufacturers of the city and is also a prominent banker. oldest paper manufacturers of the city and is also a prominent banker. For years he has been a member of the firm of Knowlton Brothers, which owns the Kamargo mills in Mills street, where is manufactured kodak and other special papers. Several times this eoncern has supplied the government with cover paper, but this year, it was underbid by the American Writing Paper Company of Holyoke, Mass.

Frank M. Williams, a well known consulting chemist of this city, who has done work for several paper companies in various parts of the country, has been invited to address the members of the Society of Chemical Industry and the Engineering Society of Queens University at Kingston, Ont., Feb. 28. Many Canadian paper and pulp manufacturers belong to these societies and Mr. Williams will address them on "The Manufacture of Sulphite Pulp."

phite Pulp.

The St. Regis Paper Company of this city has just completed the rossing of 26,000 cords of wood at its rossing plant at West Carthage and Wednesday night shut down the plant. No more carthage and Wednesday night shut down the plant. No more rossing will be done until about June 1 after the wood has arrived at the mill from the spring drives. During the remainder of the winter the time will be spent in making repairs and putting the mill in shape for operation again in June. It is expected that by next year at this time about 40,000 cords of wood will be rossed at this plant.

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at this plant.

Several changes have just been made in the operating forces of the talc mines and mills at Talcville. James Phippin in charge of the power house of the Uniform Fibrous Talc Company has resigned to accept the position of pit foreman at mine No. 3 of the International Pulp Company and his place will be filled by R. A. Shafter, foreman for the former company, has also resigned and his place will be taken by Frank Maxon, who has had charge of the repair work up to the present time. Perley had charge of the repair work up to the present time. Perley Hopper has taken charge of the blacksmithing department for the Uniform Fibrous company.

BLACK RIVER.

Lumbering in the Cranberry Lake Region

[SPECIAL TO PAPER]

WATERTOWN, Feb. 17—Frank L. Moore, president and general manager of the Newton Falls Paper Company of this city returned Friday from the company's lumber camps in the Cranberry Lake region, where he has been for the past several days inspecting the lumbering operations. Until about ten days ago, inspecting the lumbering operations. Until about ten days ago, there was no snow on the ground in this part of the state and the lumbermen were beginning to get worried about their next sum-mer's supply of wood and lumber. A score or more of contracmer's supply of wood and tumber. A score of more of contrac-tors have been paying their logging crews for several weeks, although there was no assurance that there would be snow enough to permit of hauling the logs to the streams, where they might be floated to the mills as soon as the ice goes out in the spring. Nevertheless the woodsmen and teams had to be kept in readiness and fed. The trees were felled and left for the snow to come.

During the past ten days the teams of the woodsmen have been kept busy from early morning until late at night and tremendous loads of logs have been hauled. The contractors claim that with three weeks more of cold weather they will be able to get all of their logs to the water's edge ready to float them down stream, when the ice disappears. The snow of the past few days has saved many of the lumbermen from losing money on their contracts, but at that their margin of profit will be small because of

tracts, but at that their margin of profit will be small because of the expense of feeding the teams and keeping men during a long period of enforced idleness in order to have them when wanted.

The Newton Falls Paper Company has six million feet of wood to be floated out of Cranberry Lake and down the Oswegatchie river to Newton Falls. Mr. Moore brought back with him a photograph taken of one of the loads of logs with the team and crew. The logs were piled wide and high into the air, there being 20,000 feet of wood in the load.

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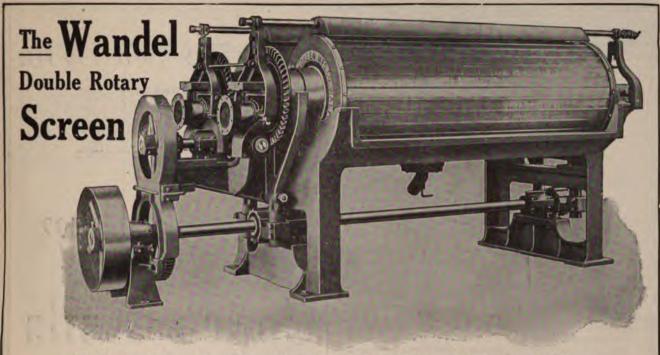
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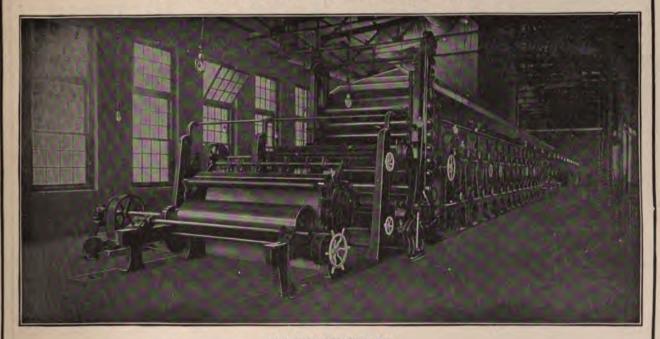


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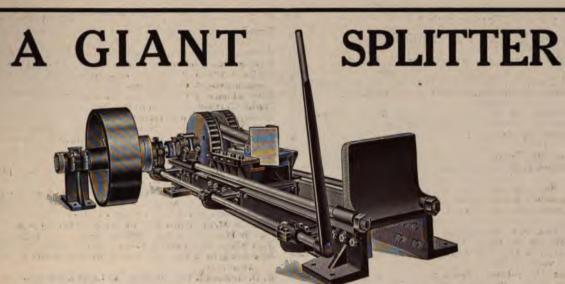
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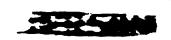
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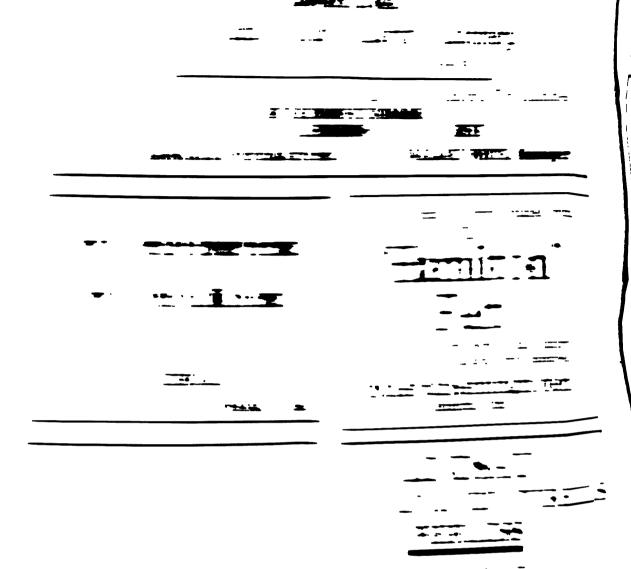
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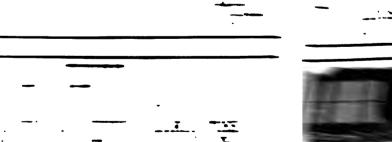
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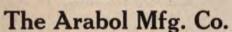
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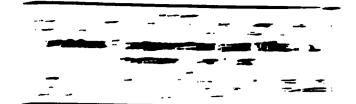
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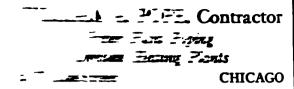


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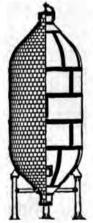
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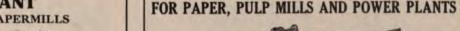
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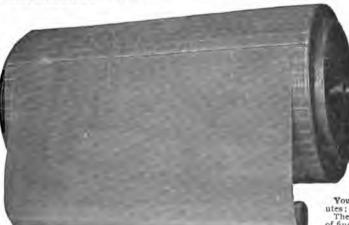
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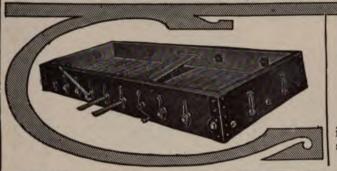
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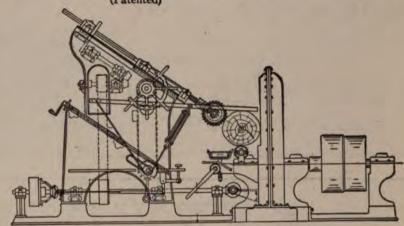
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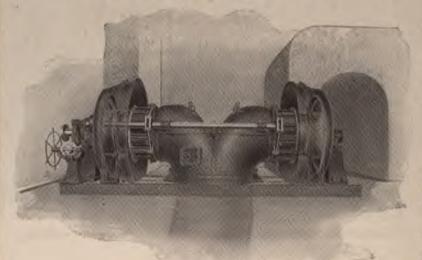


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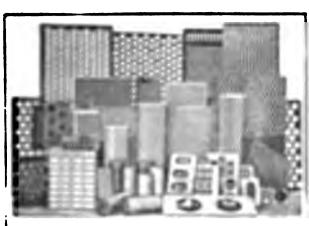


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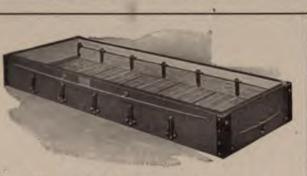
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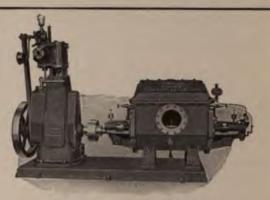
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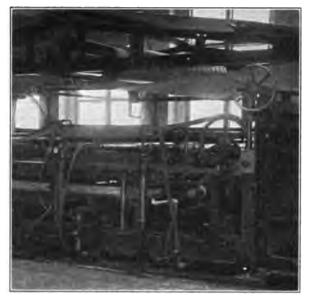
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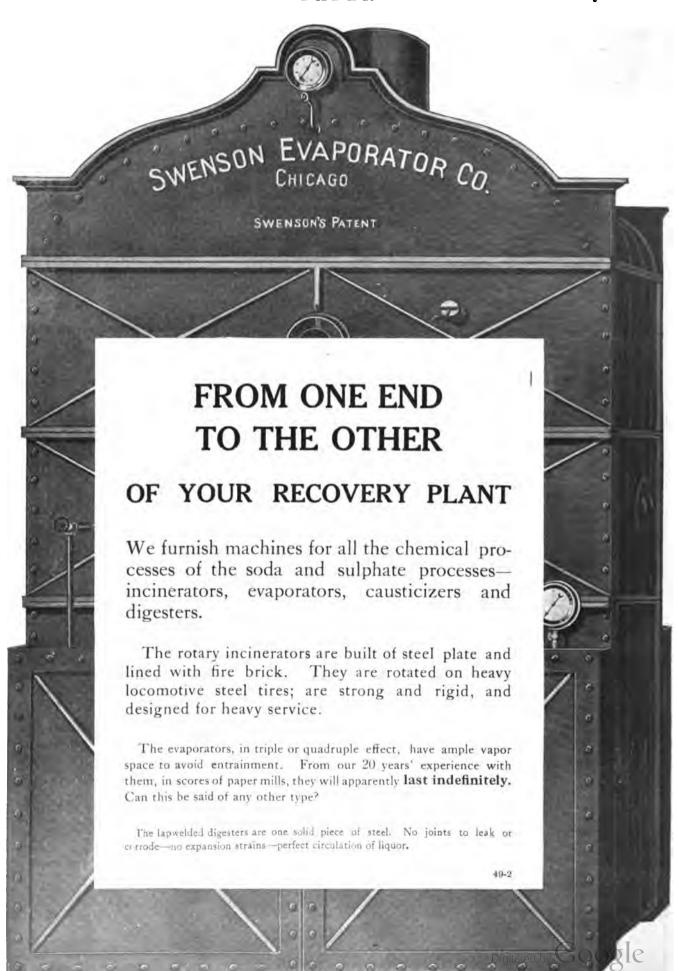
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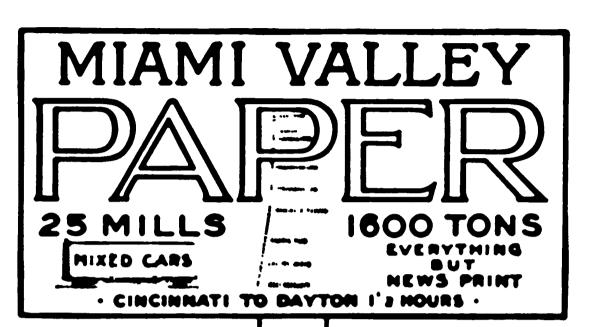
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COWAN TRUCK CO.

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"THE VALLEY"

MOSINEE KRAFT



Chief "All Over The Sky" Age 127 Years, 1913

"Tough as an Indian."

Made in the United States. Made in the State of Wisconsin. Made on the Little Bull Falls Water Power. Made from Wisconsin Coniferous Woods. Made in all sizes and weights from 15 lbs. to 200 lbs. Made in various colors, natural, tan, brown, red, green, gray, blue, black.

If you want Kraft paper made especially for the following purposes—bags, covers, envelopes, leather, sand paper or wrapping paper, write us for samples and prices.

Try it, test it, tear it, and you will agree with us that no better Kraft paper is made anywhere in the world.

Wausau Sulphate Fibre Company

MOSINEE, WISCONSIN

Manufacturers of Kraft Paper and Pulp

Bermingham & Seaman Company CHICAGO, ILLINOT

of newsprint and the cheaper grades of book paper, or alone in the manufacture of boards; ground poplar wood being also used to some extent for this purpose.

It is the pulp produced by chemical means which has most interest for the pharmacist, the systems in use being, as already indicated, so much at variance with pharmaceutical work and especially the extractive processes employed in pharmacy. The chief processes are known as the sulphite, the soda and the sulphate. By the solvent action of the chemical solutions upon the nonfibrous constituents of the wood the cellulose is set free from its enveloping bodies and is recovered to the extent of nearly 50 per cent of the total weight of the The material which is extracted, consisting of all the soluble constituents of the wood—the gums, resins, tannins and the other valuable plant principles which encrust the cellulose—represents to the papermaker so much offal or waste, and, in the soda process, is destroyed by burning, the soda being recovered; and, in the sulphite process, washed into rivers and streams. with a total loss of organic extractives and chemicals.

It is scarcely necessary to emphasize more particularly the sharpness of the contrast that is here presented to the work of the pharmacist, where the end aimed at is the separation of the active and soluble constituents of the plant from the inert insoluble portion; the residue or marc, consisting of broken down woody tissue and fibers, being rejected. But to illustrate better the contrast in work, a brief description of the sulphite process of pulpmaking may be given. The wood, having been cleaned and cut up into pieces from two to five feet in length, as in the ground wood process, is chipped up into small pieces or chips about one-fourth inch to one-half inch thick and boiled under pressure in large steel digesters capable of holding twenty tons of wood at one operation and yielding ten tons of finished pulp. The digesters are lined with heavy cement backing faced with brick, pointed with litharge and

glycerin, to prevent contact with the metal.

The sulphite liquor in which the wood is boiled is made by passing sulphur dioxide—obtained by burning sulphur, or iron pyrite, in special ovens-into tanks filled with water and a known quantity of slaked lime (prepared from dolomite). This results in the formation of a solution of the acid sulphites of calcium and magnesium, which is the active solvent agent. 'The chemistry of the reaction between the wood and the sulphite liquor prepared from dolomite or magnesian limestone is tersely but sufficiently stated by Thorp ("Outlines of Industrial Chemistry". Macmillan, 1911), who explains that the acid sulphites react much like sulphurous acid, but the sulphites combine with the aldehydes formed in the first stages of the decomposition, producing stable and soluble double salts. The organic acids which are also formed decompose the bisulphites and form soluble calcium and magnesium salts, while the sulphurous acid gas is set free, causing a constant increase of pressure within the digester. acid sulphites also tend to bleach the coloring matter of the fibers by forming colorless compounds with them, but this is a very unstable bleach and the original color soon returns when the pulp is made into paper. phite of calcium is unstable and decomposes readily into neutral sulphite, setting free sulphurous acid. results in the precipitation of the neutral sulphite on the fiber, which is left harsh even after long washing. Magnesium bisulphite is more stable, and although less corrosive to the fiber, it dissolves the noncellulose matter even more completely than does the lime salt; further any sulphate or neutral sulphite which may be formed is easily washed off and the pulp is left soft and white. Sodium bisulphite gives a better product than either of the foregoing, and strong liquors can be made from it; but it is too expensive for general use.

When the digesters have been filled with the wood chips and the requisite quantity of sulphite liquor is added, the manhole or cover at the top of the digester is securely fastened, and steam is turned on gradually until the pressure reaches seventy or eighty pounds. The cooking is steadily maintained at this pressure for a period of eight to ten hours. At the end of this time the contents of the boiler, consisting of softened pulp, are discharged into large vats and washed. The spent liquor containing the dissolved resinous and nonfibrous portions of the original wood is allowed to drain away from the mass in the tank, which is then washed out and made ready for another charge.

It is the disposition of this spent liquor which constitutes one of the weightiest problems confronting the manufacturer of chemical pulps today. He is eager to be informed of a means of utilizing the liquor that would obviate the present necessity of throwing it into contiguous rivers and streams, for he realizes the danger that threatens the industry from the enactment of laws that will prevent him from turning his waste liquors into the watercourses of the country in such large quantities as has been done up to the present time.

By neutralizing the liquor and starting fermentation of the contained sugars alcohol of a low grade is produced from it in several pulp plants in Sweden, and by a patented concentration process used in the United States, a compound is formed from the liquor, named glutrin, which is utilized as a binder in roadmaking, as a tanning extract and as an adhesive for sand in making moulds and cores for iron castings in foundries.

But the profitable recovery of the organic matter dissolved from wood in the sulphite process is still an unsolved problem. The recovery of the innumerable organic substances dissolved in it, which is so fascinating a field of speculation for the chemist, has no interest for the pulpmaker, and is regarded as something of minor importance compared with the question of getting rid of the liquor in some way agreeable to the authorities and at the same time inexpensively and expeditiously. Although the problem has been deeply studied by able chemists for the past twenty years, it has yet to be tackled by a pharmaceutical chemist, and when it is we may look for the production of a whole series of new organic compounds.

In the soda and the sulphate processes of extraction there is effected a partial recovery of materials. incinerating the spent soda liquor, after evaporating and concentrating it, the soda itself is regenerated, but there is here again a total loss of the organic derivatives of the wood, which are burned up in recovering the

soda.

The soda process is used for soft woods like poplar, cotton and basswood, whereas the sulphite process is exclusively employed for coniferous woods. ped wood is boiled in a solution of caustic soda for eight or nine hours at a pressure of seventy or eighty pounds. The pulp produced is soft and bleaches well, making it especially well adapted for the manufacture of book and magazine papers.

Sulphate pulp is prepared by boiling the wood chips in a solution of sodium sulphate containing some caustic soda and sodium carbonate. It is a slower process than either the sulphite or the soda, as the period of boiling instead of being eight or nine hours, is sometimes extended to thirty-five hours, though good results are possible with a shorter cooking. The sulphate is reduced to sulphide by organic matter during incineration as a step in recovery, and by its presence in the liquorar subsequently made oxidation of the fiber is prevented.

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the pulp is then carefully removed on the point of the microscope needle from the test tube and placed on each end of one of the microscope slides, the excess liquid being removed by a pointed strip of filter paper brought

in contact with the edge of the drop.

The fibers forming the pulp are thoroughly dried and a drop of the Herzberg stain is added, then the fibers are well "teased" out by the use of the microscope needles, a cover glass is placed over them and well pressed down, all the stain pressed out around the edges of the glass being removed with filter paper.

The slide is next placed under the microscope, and after studying the various fields an estimate of the proportion of each of the various kinds of fibers may be

One of the most frequently used solutions for staining fibers for microscopic examination is a solution of iodine in potassium iodide of the following composition:

Iodine	m. 1,15
Glycerin	m. 1.
Potassium iodide	m. 2.
Water	

In contact with this solution cotton, linen, bleached hemp and ramie fibers are colored brown; while mechanical woodpulp, jute and manila hemp are colored yellow or yellow brown. Chemical pulp of wood, straw and esparto are not affected.

solution of calcium nitrate in iodo-potassium iodide is said to offer some advantages over chlorzinciodine solution. For one thing it does not absorb moisture from the air and it does not alter the fibers. It is made as follows:

solution no. 1	
Nitrate of calcium crystalsGm.	100
Distilled waterGm.	50
Dissolve.	
solution no. 2	

Iodine									 Gm.	1
Potassium iodide									 Gm.	5
Distilled water									 Gm.	90
olvo										

For use 3 Cc. of Solution No. 1 is added to Solution

This solution stains linen fiber a rose color, with a brownish tinge; ground wood is colored yellow; bleached sulphite fiber a delicate rose tint; unbleached sulphite fiber, clear yellow; soda popular fiber, indigo blue; straw fiber and esparto blue.

Several rough identity or diagnostic tests for the presence of ground wood in paper are employed by paper

dealers, of which the following may be noted:

A solution of phloroglucin in alcohol is used for identifying mechanical or ground woodpulp, which turns a beautiful red color in contact with the reagent, the depth of tint, as compared with Schopper's standard color tables, corresponding to the amount of mechanical pulp, or lignified fiber, present. The procedure is as follows:

Into a flat porcelain dish pour two parts of a 2 per cent alcoholic solution of phloroglucin and one part of hydrochloric acid (phloroglucin, Gm. 1; alcohol, Cc. 50; hydrochloric acid, Cc. 25), and immerse in the solution the paper under examination. After ten minutes of contact compare the color developed with Schopper's standard color table.

In papers having a red or rose color the phloroglucin reaction breaks down and the employment of benzidine hydrochloride is recommended, this reagent giving rise to an orange color in the presence of mechanical woodpulp. The reagent is made by rubbing up 15 grains of chemically pure benzidine with 15 minims of hydro-

chloric acid and dissolving the benzidine hydrochloride formed in 2½ drachms of water at 122°F. The solution is simply dabbed on the paper to be tested, and the orange color produced in the presence of mechanical woodpulp is the more intensive the more woodpulp is contained in the paper. The test is a very delicate one, the orange color being produced even when only traces of mechanical woodpulp are present.

Aniline sulphate stains lignified fiber yellow and a 10 per cent solution of this salt, acidulated with sulphuric acid, imparts a golden yellow tint to paper containing ground wood, the color being more or less intense according to the proportion of ground woodpulp present. A solution of aniline chloride and hydrochloric acid is also used, but the results with each of these aniline solutions are inferior to those obtained with phloro-

Wurster's reagent is popular in Germany as a diagnostic test for ground woodpulp, but as it, as well as phloroglucin and the aniline salts, develop their characteristic colors with any lignified fiber, the test is not conclusive of the presence of ground woodpulp alone. Wurster's reagent consists of a 50 per cent solution of dimethylparaphenylenediamine in water. a deep red color with ground woodpulp. There are now available test papers impregnated with Wurster's reagent which are called "di-paper" for convenience. Strips of this test paper are placed in a double sheet between the paper to be tested. After moistening the layers of paper with water the red color that develops is compared with a standard table of color values which is sold with the test papers.

It is the lignocelluloses, reacting to the foregoing reagents, which impart the greatest element of weakness and decay to paper. They are unsaturated compounds greedy of oxygen and profoundly affected by all oxidizing agents. Pure cellulose is a saturated compound which is resistant to the action of both chemicals and atmospheric changes, and this accounts for the practical indestructibility of rag papers, which are free from lignin and consist of nearly pure cellulose. Books and papers dating from the middle ages are to be found in museums and libraries to-day in a good state of preservation because they were made at a time when rags were the only crude material for the manufacture of paper.

To Attach Paper to Metal

Paper may be stuck to aluminum, where the latter is in the form of a thin sheet foil, by means of a mixture of about equal parts of Venice turpentine, bees wax and paraffin wax to be applied warm to the metal, the paper laid upon it and pressed fast by means of a roller or a rubber. It is admitted that this adhesive will occassonally come through the paper a little, darkening it slightly. If the paper is painted in very light colors, this does not harm, because the penetration occurs very evenly, without spots. Where this adhesive is used the sheet metal with the paper stuck to it, can be bent at will without its cracking, the attachment being exceedingly elastic. The adhesive will stick particularly well, if the metal surface has previously been rubbed rough with coarse emery cloth. By this means, metals, sheet metal, etc. in all patterns, can be made partly nonconductive in electroplating.

Paper can in some instances be securely stuck to aluminum and other metals with a caoutchone solution. For this purpose a solution of caoutchone in benzing such as is used for repairing pneumatic tires, is used Paper that is smooth on one side only can be very firml attached to metal, if the one side, the rough side,

coated and pressed on to the metal.

Water in Papermaking

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addition of the alum the water becomes somewhat turbid and flocculent matter will be visible all through it, some precipitated matter coming to the surface and some settling to the bottom. A portion of this matter is the decomposed alum that has been applied, but most of it represents what is generally called vegetable matter and whatever suspended inorganic matter may have been present in the water. It all has a marked affinity for cellulose and will attach itself to it if placed in contact with it.

This same process is duplicated in the beaters when alum is applied for the precipitation of size or for mordanting the colors. Not only is the size precipitated but this coloring matter made visible in the experiment is precipitated also and a very decided change in color of the paper is sometimes effected. Filtration without a coagulant does not prevent discoloration because the color is in solution and readily goes through the filter, only to be deposited on the fiber later. this coloring matter contains a little iron—and it frequently does—the color of the paper will change very materially with age. As to the mordanting of the dyes, while alum is not the only mordant used any of the other mordants will produce the same effect of coagulating the vegetable matter, and it frequently happens that a color that will develop a pink at one stage of the river will develop a salmon color at another, merely for the reason that the yellow existing in the water at low stages of the stream is precipitated on the fiber as well as the pink dye, and the color is changed.

The only and certain way to keep the alum and other coagulating substances used in paper manufacture from precipitating the foreign matter on the stock and causing the above undesired results, is to anticipate the process of coagulation in the filter plant itself and to apply a coagulant in sufficient quantities to precipitate all of this foreign matter before the water itself is passed through the filter. Having given the water this treatment and afterward passing it through the filter it will be impossible to produce any further undesired precipitation from the fact that all of the offensive matter has been precipitated and retained in the filter.

It is quite evident that the small particles of matter floating in water will make specks in the paper. Although comparatively small they seem to possess the power of flattening out under the calender rolls to make very large specks. Filtration, of course, removes these particles, but filtration with proper chemical treatment goes further; it gives a water that can produce a perfectly white sheet of paper, free from any water-borne discolorations.

Few paper mills in the present day are so fortunately located as to have their water supply free from contamination by industrial wastes. It may be that the waste comes from other paper mills, from textile mills which use large quantities of dyes, soaps, etc., or that sewage is emptied into the stream. A paper mill is not a plant that can be picked up and moved about readily, and all the good sites were long ago preempted, so that many of the papermakers of the more thickly populated part of the country have seen, during the past ten years, their once good supplies converted into water of the most dubious aspect. The saving grace of this situation is that the art of filtration has advanced a little faster than the streams have deteriorated, with the result that the filter man can in almost every case suggest a plan of preliminary treatment and filtration that will make a highly polluted water better for paper making than it was before contamination.

All purification plants are not by any means alike but are designed to meet the condition that exists at the place of installation. The filter man studies the situation, makes a note of the various forms of contaminination, their quantity, their proportion with regard to the normal flow of the stream, and then submits a plan for a plant that he knows will meet the situation. For badly polluted waters the plant consists of a settling basin for the preliminary treatment of the water with chemicals and of a filter plant for removing whatever precipitated impurities have not settled to the bottom.

Generally speaking all the chemical treatment that is required is the addition of alum. The alum as already stated precipitates the natural colors that exist in the water and it also precipitates nearly all of the artificial dyes. It also coagulates any soap that may be in the water, precipitates the sewage, and gathers together various nondescript particles of matter which have the same specific gravity as the water and would not otherwise settle. The action of the alum is very rapid indeed, so that in a short time after the addition of this coagulant the flocculent matter is quite visible to the naked eye. When flocculation takes place sedimentation follows with great rapidity, so that two hours' sedimentation with alum will often produce a greater degree of clarification than two days' sedimentation without it.

The alum is applied to the water as it enters the sedimentation tank and in this tank baffles are so arranged that the water takes a circuitous course. If this were not done the water would take a direct line from inlet to outlet and instead of remaining for a period of several hours within the basin it would pass directly across it in a few minutes and the necessary chemical action and sedimentation would not be completed. For waters not badly polluted the settling tank is very frequently omitted, the alum being applied as the water enters the filter, sufficient chemical action taking place to precipitate the impurities.

In some cases the water is so soft that the alum is not effective. This is because the alum requires an alkali to decompose it and it is in the process of decomposition that all of the beneficial results desired are obtained. The deficiency in alkalinity is made up by means of small quantities of lime or soda, which are applied to the water, and the alum, having the alkali to decompose it, operates actively and produces a profuse precipitate.

it, operates actively and produces a profuse precipitate. This action of alum can best be explained by describing just what alum is. The active agent in alum is sulphate of aluminum, which is made by combining sulphuric acid and clay. When the sulphate of aluminum is dissolved and applied to a water containing carbonates of lime and magnesia, both of which are strong alkalies, the sulphuric acid, having a greater affinity for the strong alkali of the lime and magnesia than it has for the weak alkali of the clay, leaves the alum to combine with the lime and the alum goes back to what is virtually an insoluble clay called hydrate of alumina. The hydrate formed by the decomposition of the alum when perfectly fresh is quite gelatinous and sticky and it is this gelatinous property which causes it to gather together all of the particles of matter in the water.

In a few extreme instances the streams show pollution to such a degree that the matter precipiated by the alum is not only redissolved by bacterial action in the sludge at the bottom of the chamber, thus liberating much of the precipitated matter, but large quantities of gas are generated which tend to buoy the sludge to the surface, nullifying the objects aimed at in the settling basin. Where this condition is enountered—and for tunately such cases are rare—antiseptic treatment of the water must be resorted to and hypochlorite of lime or, as it is more familiarly known, chemical or bleaching powder, is the agent which entirely arrests this processor of fermentation. Usually from sixteen to twenty find

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Spain's Export Trade in Exparto Grass

ESPARTO grass ranks third among the exports from Almeria, Spain, according to a report by U. S. Consular Assistant Ripley Wilson, who is stationed there. The city is the center of the industry in Spain. There are three firms engaged in preparing the grass for shipment, and these buy direct from the villagers who do the gathering and who bring the esparto in from the surrounding country.

At present esparto can be purchased as it comes in from the country for about 67 cents per 46 kilos (101½ pounds); but this grass can not be baled and shipped for papermaking purposes without first being carefully inspected and cleaned of roots and bits of earth and other foreign matter that the natives include in the rough bundles they make. This cleaning in the factories of Almeria is done entirely by women, who are paid according to the amount they look over. One rarely earns more than 35 cents in a day. While cleaning the grass these women also sort the esparto into two grades, the first consisting of the full, heavy grass, and the second of the lighter and discolored stock. The first grade seldom yields under 55 per cent pulp.

The facilities that are offered by the local railway make it very difficult at times to bring the grass in from the outlying districts, and the trouble encountered during certain seasons of the year in getting ships for transport make the business an uncertain one. The fact, as stated in other consular reports, that the esparto root is often picked with the grass is true in this district also, and much damage is being done each year.

At various times the construction of a pulp mill in Almeria has been considered, but largely on account of the great difficulty in obtaining water, a plentiful supply of which is needed in pulp making, the factory has not materialized. The bulk of esparto exported from

this city is sent to Great Britain.

Consul Rufus Fleming, Edinburgh, Scotland, reports that Scotch paper makers use esparto extensively. Paper mills in his district, producing about 1,500 tons per week, 1,000 tons being writing and printing paper, use large quantities of esparto, both Spanish and African. Almost three times as much esparto (in weight) is imported into the district as of rags and woodpulp combined. It is imported in hydraulically compressed bales, of uniform weight and size, approximately seven bales to the ton (2,240 pounds). From Spanish esparto the yield of paper is 55 per cent; from African, about 50 per cent; and from rags, 90 per cent. Newsprint is largely made from mechanical woodpulp, with the addition of a small proportion of chemical pulp.

with the addition of a small proportion of chemical pulp.

Most of the mills in east Scotland have contracted for their supplies of first-quality Algerian esparto over 1913 on the basis of £3 9s. (\$16.79) per ton, free on rail at Edinburg. Prices advanced somewhat last fall, and sales were made to English ports for shipment in 1913 at £3 12s. 6d. (\$17.64) free on rail. Tunisian esparto is scarce. As a rule, shippers of this variety sell Tripoli or (and) Tunisian esparto, and the cessation of supplies from Tripoli caused a run on Tunisian, and has indeed affected the price of all African esparto. Tunisian and Tripoli usually sell about 5s. (\$1.21 to 3s. 6d. (85 cents) per ton below Algerian, but there has lately been practically no difference. For best Spanish esparto the average contract price for 1913 has been about £4 15. (\$23.11) free on rail at Edinburgh. article appears to be short, and if further quantities were required it is probable that a considerably higher price would have to be paid.

Wholesale prices of esparto papers in this market range from $4\frac{1}{2}$ cents to $6\frac{1}{2}$ cents per pound.

The Importance of Forestry

In speaking on "Forestry," at the annual dinner of the University Club in Brooklyn, on February 11, Dr. Henry Sturgis Drinker, president of Lehigh University and president of the American Forestry Association, reviewed briefly the efforts that have been made in the United States toward forest conservation and outlined what still further remains to be accomplished in this important national question. The two chief enemies of the forests, he said, are fire and unreasonable taxation, and the important point to bring before the American people is that true forestry is not preservation of the trees, but proper cutting and reproduction. The country has awakened to the necessity of proper development of the forests, he believes, and will continue the policy that is being put in operation.

In part President Drinker said:

"The State of New York has been a leader in the setting aside of timber reservations, but with a policy in their maintenance that has been and is at variance with the general teaching of forestry experts. We should remember that forestry does not consist in the preservation of timber; true forestry looks to the cutting of the timber when it reaches its mature growth, and then to its constant reproduction.

"Nothing is more important than to bring home to our people the principle that true forestry is not the preservation of timber, but its proper cutting and reproduction. The preservation, in exceptional instances, of bodies of timber for scenic and esthetic purposes and uses is sometimes confounded with forestry proper, but the two are distinct and serve different ends.

"Above all things the support of our people should be given to the National Forestry Bureau and to the maintenance of our great national forests in their integrity. They have been set aside not only for the benefit of the states in which they are located, but under Government ownership for the benefit of the country. Their maintenance means a constant timber supply, and a natural regulation of the stream supply in the West and the same ends will be served by the Appalachian reserves extending from New Hampshire to Georgia under the operation of the Weeks bill adopted last year.

"We may be thankful that the day of groping in forestry is past; we are out of the darkness and into the light. The country has awakened to the importance of this great subject, and like all American movements, backed and supported by the common sense and intelligence of our people, there is no fear but that the policy adopted and carried out will be wise, economic and progressive."

Sand Blast as Barker

A Swedish patent has been issued to L. Yugström of Falem on a process of removing the bark from wood. The method consists in directing against the wood, a pressure medium (sand blast), air or water for instance, that carries with it solid particles, which, when they come in contact with the wood, in combination with the pressure medium, effect the removal of the bark on the principle of the sand blast. Round logs can be barked for their entire length, by moving the point, subject to the effect of the pressure medium, forward in a spiral direction.

Progress of Papermaking in 1912



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manufacture of board from wood waste by a new process involving treatment of the cooked waste under

heavy crushing rollers.

Attention should be called to the series of papers by Zacharias which appeared in sixteen numbers of Papier-fabrikant, and had for their subject matter the boiling and steaming processes for making brown mechanical woodpulp. The articles are too long for abstracts here, but lead to the conclusion that boards made from boiled woodpulp show a decided advantage over steamed woodpulp board in tensile strength, resistance to folding, liability to tear, etc., and exhibit a greater stretch.

The effect of variable grinding conditions on the quality of production of mechanical pulp has been made the subject of exhaustive study by Cline and Thickens of the Forest Products Laboratories. Experiments conducted on a semicommercial scale lead to the following conclusions:

(1) The power to the grinder increases directly with the speed and pressure, and inversely with the degree of sharpness of the stone. There is also a very slight increase with temperature. Under like conditions the power to the grinder is less for steamed wood than for green or seasoned wood untreated.

(2) The production of pulp in twenty-four hours varies directly with the pressure speed and degree of sharpness of the surface of the stone. Under like conditions less pulp is obtained in twenty-four hours

from seasoned wood than from green and still less from

steamed wood.

(a) Horsepower consumption per ton, however, ses as pressure and speed increase, and is lower stones than on dull. Temperature has little Power consumption per ton is higher for ood than for green wood, and still higher for d; also power per ton is higher for conihard woods.

eld of pulp per cord is greater at high pres-

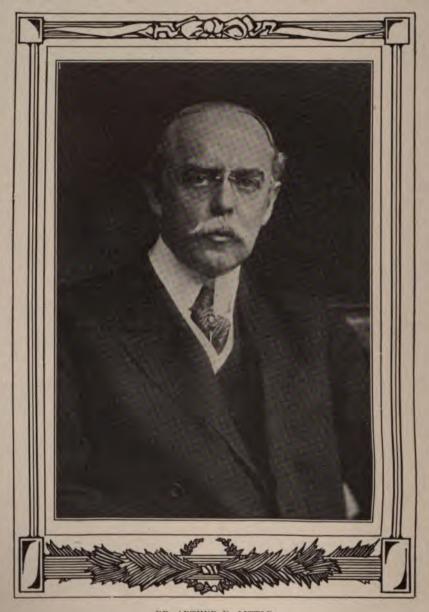
sure and speed than at low, and is directly proportioned to the density of the wood; yield per cord is independent of the nature of the surface of the stone.

(5) The quality of the pulp varies greatly with the surface of the stone, less with the pressure and least with the speed. Density and character of the wood and temperature of grinding have great influence on the quality of the pulp, better pulp being obtained at higher temperature. Green wood yields pulp of better color than seasoned wood, while steamed wood yields a stronger pulp than untreated wood.

In discussing before the Eighth Congress of Applied

Chemistry those products which lie hetween wood and cellulose in lignin content, such as hot-ground mechanical woodpulp and steamed mechanical wood. kraft, etc., all of which are classed under the term " half-cellulose, Dr. Schwalbe intimated that remarkable results as to yield and strength may soon anticipated from a new process which is a modification of the sulphite process.

Von Weinarn reports some exceedingly significant observations upon the facility with which different kinds of cellulose may be rendered gelatinous and plastic or brought into a colloidal solution by treatment with aqueous salt solutions under suitable conditions, of concentration, temperature, pressure and duration of action. The gelatinization is accelerated in most cases by increased temperature and pressure since the



DR. ARTHUR D. LITTLE
President of the American Chemical Society and Official Chemist to the
American Paper & Pulp Association

solubility of the salt used is thereby increased. Among the numerous suitable salts may be mentioned; common salt, chloride of calcium, and the thiocyanates of calcium and barium.

Wrede proposes to increase the retention of starch in paper by cooking the starch in a solution of silicated soda, taking care to avoid overcooking. The method is asserted to make possible a 66 per cent retention.

An important study into the causes of the yellow dicoloration of paper has been made by Schoeller, a

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When difficulties in sizing were experienced the quantities of size and alum were first checked, and tests were made to ascertain that neither too little or too much alum had been used, both being equally fatal to good sizing. Next a little more size and alum were added and their action assisted by the addition of casein. In most cases this cured the trouble, but if it did not, gelatin was added to the amount of 0.3 to 0.6 per cent of the furnish. The gelatin was added by itself and allowed to

mix with the stuff before the alum was introduced.

Rag stuff is more difficult to size than stuff containing woodpulp, and it is desirable to wash out thoroughly the residues of the bleaching chemicals. Some of the ready-made sizes on the market are excellent and show advantages over home-made size. One of these sizes is in present use at the writer's mill; this size is stated to be boiled with water-glass instead of with soda ash and to contain no free rosin. It possesses the advantage of giving an extremely pure white in the paper which was not previously obtainable; much time and trouble were, however, expended in experiments, before the proper conditions for hard sizing were finally arrived at.

Cellulose from the Asparagus Plant

To the many other vegetable growths from which it is hoped to obtain material suitable for papermaking, must now be added the asparagus plant, the source of supply of one of the most highly prized table vegetables. Dr. Reinke, professor at the technical high school, Brunswick, Germany, asserts he is able to produce from the stalks and sheaths of asparagus cellulose available for papermaking in paying quantity.

On the basis of estimates and private information in the Brunswick section, it appears that asparagus is raised on 12,000 acres, each acre yielding 16 cwt. of asparagus, in all 192,000 cwt., which would give 45,000 of husks, capable of yielding altogether 12,716 cwt. of cellulose, or in round figures 1 cwt. per acre, and that the asparagus production on all the land in Germany devoted to the cultivation of this vegetable, if it could all be made available, would be in round figures 2,300 tons of cellulose—or about the output for a month of a single cellulose mill.

After presenting these figures, Dr. Nurus, in the Wochenblatt für Papierfabrikation, concluded that the asparagus plant is available in such small quantities, that it is of but little consequence so far as papermaking is concerned, although he admits that it might eventally find utilization in the establishments engaged in the production of cellulose from straw.

Incinerator Linings

IT has been pointed out by the Swenson Evaporator Co. that the question of lining incinerators for pulp mills is one of some little complexity because of the various features which have to be taken account of. The lining has to withstand not only the high temperature and the wear and abrasion due to the revolving kiln, but also must be of exceptional density so that it will not be affected by the liquor going through the kiln.

In a recent machine furnished for this purpose for which a special fire clay block was designed by the Harbison-Walker Refractories Co., the highest grade of clays were used in order to render the block unusually refractory. Although a lower grade of clay could withstand the heat of the incinerator without melting on the surface, it has been found that the life

of the lining is very much increased by the use of the highest grade clays obtainable. These have to be carefully selected, and ground and burned with the greatest care.

Origin of Coal and Lignite

COUNTLESS ages ago there were swamps and shallow lakes in which marsh-loving plants grow, deep waters in which algae flourished and aquatic mosses spread over the surface in tangled mats which, under the prehistoric condition, were such that these plants grow with a succulent freedom and rapidity unknown in later days. These plants died and fell into the water and by some preserving action of the water were gradually embalmed and fossilized. In course of time the deposit accumulated, fermentation took place and the vegetable matter was gradually altered in composition and character. This in time, and under increased temperature and pressure, became peat and afterwards covnerted into lignite and perhaps eventually became coal.

Coal is admitted to be the fossil remains of vegetation that flourished in the carboniferous period of the world's history, while lignite is that of the cretaceous and tertiary periods which are far more recent.

The nature of the compounds which go to build up coal of different kinds is still more or less a mystery, despite the fact that scientists have been investigating this subject for over 100 years. In nature there is a wonderful cycle of processes in continuous action by which the atmosphere is purified of the products of life and decay, through assimulation by vegetation, and under the influence of the sun's ray, the growing plant builds up its tissues from the carbon, hydrogen and oxygen, renders latent and storing the solar energy, and in the countless ages they were gradually converted into fuel.

According to Prof. Vivian Lewis, all the plants which were fossilized consisted of sedges and reeds, tree ferns, club mosses and trees akin to pine. The spores of club mosses of today give off a substance of so resinous in its nature as to resist the action of water and perhaps this has contributed to the preservation of plants in water. With some forms of vegetation the essential oils undergo oxidation and form resin and, these being more resistant to change, accumulate in masses of decaying vegetable matter so that large quantities of them are found in peat and lignite beds of Germany in a fossilized but little changed state, but whether they are to be found in this province, no information is yet to hand.

Peat, then, is merely decomposed vegetable matter, consisting chiefly of decayed moss and water plants, and is the lowest grade of fuel recognized in the classification of coals. It varies from yellowish or brown fibrous substance in which leaves and tissues of the plants are quite perfectly preserved through different stages of maceration to a dark brown colored material, in which little of the original structure can be recognized. Peat, after drying, is used for making coke, in gas producers, as domestic fuel, and in some countries it is briquetted. In the province of Schleswig-Holstein, a central power plant has been erected to supply electricity to sixty communities lying within a circle of sixteen miles, and all power necessary is furnished by gas producers run entirely on peat.

Lignite, is formed by a mass of compressed and partly altered vegetable matter. Sometimes stems are found in it presenting the appearance of undecomposed wood. Lignite contains a larger proportion of oxygen than does coal. It is sometimes called fossil wood, wood coal and brown coal. Some lignite, however, so closely

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PAPER

A Weekly Illustrated Journal of Information on the Manufacture, Uses and Sale of Pulp and Paper

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The Annual Meeting

HERE can be little doubt that in many ways the meeting of the American Paper & Pulp Association, held at the Waldorf-Astoria, in New York, last week, was the best in the history of the organization.

More and more the real purpose and the possibilities of the association appear to be appreciated by the membership. It was not long ago that it seemed to have no excuse for its existence except to afford an innual opportunity for a good time together. Now it is different. The enjoyment of the occasion is in no wise diminished; but the serious and business side of the proposition is given far more consideration.

The attendance at this last meeting was exceptionally good; but what is still more significant, the interest taken in the proceedings was very much greater than in former years.

It seems indeed that the many difficulties which the paper industry has encountered of late has at least served one good purpose; a closer and better relation has been established among those who are engaged in it. When men are prosperous and find in the conditions of today no discouraging promise for tomorrow, they naturally feel no need for cooperative effort. They are inclined to pursue their own courses without considering any one but themselves. If, however, they encounter stubborn and potential opposition, their disposition then is to get closer together and join in a common defense.

Those who know anything about the industry need not be told that for some time past papermakers appeared to be almost friendless. The paper trade has been an

industrial Ishmaelite. Every hand, it appeared, was lifted against it. This unfortunate and unreasonable situation brought them to feel their need of a closer mutual friendship; and the American Paper & Pulp Association afforded the best possible opportunity for its cultivation.

The business rivalry and competition is just as keen as it has ever been, but paper manufacturers have learned to think better of each other than they once did and have materially strengthened each other by working in harmony.

The notions which business men themselves have had of business organizations have been strangely extreme and inconsistent. Some have entered into combinations so manifestly unfair to the general public as to have created not only a well defined public sentiment but also to bring about the enactment of drastic laws against the practice. And this has driven many to the other extreme of refusing to associate themselves with their competitors in any manner, shape or form.

Both views are wrong. Combinations which curtail the right of others have no sanction either in law or good morals. On the other hand the close association of men engaged in the same line of business, when conducted along proper lines, is to the advantage of all and to the injury of none.

Ignorance is always and everywhere an evil; nor can any enterprise be conducted to the best public advantage which is not conducted intelligently. We have never known a man who could not learn something about his own business from others engaged in like employment. And it will not be denied that information whereby a better article may be manufactured at the same cost, or as good an article manufactured at a less cost, is in the interest of all the people.

The best papermakers frankly admit that they have been materially aided by association with each other and by frequent exchange of views. This might be accomplished, it is true, without the existence of a formal organization; but it would not be done.

We do not hesitate to express the opinion that the American Paper & Pulp Association has benefited not only the papermaker but the paper consumer as well.

The amount of good that is gotten out of such an organization is of course dependent upon the individual member and his attitude toward it. Some men belong to the Church without being thereby made any better, but it is not usually the fault of the Church. Perhaps a few have realized no advantage from being in the American Paper & Pulp Association; and still it may not be the fault of the organization. The only man we heard of who expressed the opinion that the association has accomplished nothing for him admitted, on crossexamination, that, although in the city the entire week, he had attended none of the meetings. The fire that glows on the hearthstone can not warm the feet nor cheer the heart of the man who refuses to approach it.

With the exception of this single case the work of the association was universally approved, and the only

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THE WEEK'S LATEST TRADE NEWS

Advocate Water Storage in Adirondacks

[SPECIAL TO PAPER]

WATERTOWN, Feb. 24—The Chamber of Commerce of this city and the Northern New York Development League will soon urge the representatives from this section of the state to introurge the representatives from this section of the state to introduce a bill in the state legislature amending the state constitution to provide for the construction of water storage reservoirs and dams in the Adirondack preserve in order that an even and uniform flow may be maintained in the power streams in this part of the state. The Empire State Forest Products Association is now using its efforts to this end, there being a large number of paper and pulp mills in Northern New York that are seriously affected during the dry season of each year from lack of water.

Recently the conservation commisssion went on record as favoring water storage and the three organizations mentioned will take the matter up with the commission in the hope of getting

a bill through at the present session of the legislature. While the three organizations favor the attitude of the con-servation commission on the water storage question, they stoutly oppose the recommendation of the commission that the state be allowed to develope the undeveloped waterpower of the state and enter the field now controlled by private corporations

in the sale of electric power.

According to members of the commission, the commission advocates utilizing all of the undeveloped water power now owned by the state and buying up any additional power that it may need by the state and buying up any additional power that it may need in the project. Trunk transmission lines with laterals to various points would be constructed and the power sold to municipalities for lighting public streets and buildings. Under the contracts the municipalities would also be allowed to sell the power allotted to them for commercial purposes and a charge by the state only sufficient to provide for the maintenance and upkeep of the system and furnish a sinking fund with which to pay the cost of construction, would be charged.

The members of the commission say that there is now avail-

The members of the commission say that there is now available 400,000 horsepower which belongs to the state in addition to about 1,100,000 horsepower in the state at large. Of this it is said that there is about 100,000 available in connection with the canal system without interfering with the navigation of the canal. The members of the commission believe that it is an economic waste not to utilize all of the undeveloped waterpower in the state and they believe that the people should get the benefit of it at a low rate and that many farmers and others would have the benefit of electric lights, heat and power, could they be provided with these conveniences at a cheap rate, which

The Empire State Forest Products Association favors the attitude of the commission in asking that the mature and down timber on the state lands be utilized so that the people might get the benefit of it, but the association is opposed to the top-lopping law, which members assert is impracticable and expensive, although the commission contends that it is essential as a means of increasing the protection against forest fires.

BLACK RIVER.

Ogdensburg Terminal Co. Organized

[SPECIAL TO PAPER]

WATERTOWN, Feb. 24—At the office of the secretary of state in Albany last Tuesday the Ogdensburg Pulp Wood Terminal in Albany last Tuesday the Ogdensburg Pulp Wood Terminal Company recently organized by the stockholders of the De Grasse Paper Company, was incorporated with L. G. DeCant of this city; James A. Outterson, of Carthage; F. A. Augsbury; of Antwerp, George E. Van Kennen, C. D. Hoard and S. L. Dawley, of Ogdensburg, as directors.

McRoberts & Doyle of Ogdensburg, who will be given the contract for the construction of the dock and terminal on the shores of the St. Lawrence river about three miles above Ogdens-

shores of the St. Lawrence river about three miles above Ogdensburg, will begin at once and hope to have the job completed so that the terminal may be put in use soon after the season of

navigation opens.

The company is capitalized at \$40,000 divided equally between common and preferred stock. It is expected that about 100 cords of Canadian wood will be brought by boat to the terminal this season and there stored until it is needed at the Outterson mills, when it will be loaded upon cars at the terminal and transhipped by rail to either Carthage or Pyrites as the case may be. BLACK RIVER.

Cottagers Oppose Erection of Saw Mill

[SPECIAL TO PAPER]

WATERTOWN, Feb. 24—The people, who own cottages and summer homes about Big Moose lake in the Adirondacks are getting worried over what they believe will destroy that section for summer vacation purposes. Recently Dana Bissell, of Harrisville, and Peter Yousey, of Carthage, well known lumbermen of this part of the state purchased 2,500 acres at the eastern end of the lake, planning to put up a sawmill and cut off the timber, which will be sawed up into lumber for the market. Over half a million of dollars has been expended by the people summer homes and they assert that the cutting off of the forests and the establishment of a saw mill will ruin the lake. To prevent Bissell & Yousey from carrying out their plans or at least to restrict their operations, the cottage owners have retained an

to restrict their operations, the cottage owners have retained an attorney from Utica and propose to put up a strong fight.

It is said that when Dr. Seward Webb and the Nehasane Park Association sold the adjoining tract of 75,000 acres to the state it was understood that the 2,500 would never be used for anything but camp sites. Through their attorney the property owners will petition the Conservation Commission to purchase this tract and add it to the state reserve. In case the state will not do this, they will endeavor to have restrictions enforced, which will prevent Bissell & Yousey from cutting the smaller trees. It is understood that the firm proposes to cut both the soft and the is understood that the firm proposes to cut both the soft and the hard wood and the campers are particularly desirous that none

of the small soft woods be taken out.

BLACK RIVER.

Repairing the St. Regis Rossing Plant

SPECIAL TO PAPER]

WATERTOWN, Feb. 24—Preparatory to opening the rossing plant of the St. Regis Paper Company at West Carthage, June 1, to take care of the wood for next year's use, repairs and improve-ments have already been started since it was closed down about ments have already been started since it was closed down about a week ago, the 26,000 cords of wood delivered at the mill during the past year having been sawed. A gang of men is now employed constructing new booms in the river and for this it is necessary to place the buoys, while the ice is of sufficient thickness to permit the workmen to work on it.

In the past the company has had some trouble with the boom wing to the feat that the large stones used to anchor the buoys.

In the past the company has had some trouble with the boom owing to the fact that the large stones used to anchor the buoys were pulled out of place each year. It is now proposed to use worn out grinder stones as anchors and sixty of these have been provided for the purpose. Each of the stones weighs about three tons and it is not believed that they will be easily moved after they are once placed. They will be dropped through the ice about 100 ft. apart and to each one will be attached a log or buoy, which will suffice to mark the location of the stone until spring, when the boom will be strung and connected with the log buoys. A small steamer will be used for this purpose and when finished the company will have one of the best booms in this section. section.

BLACK RIVER.

Protest Minnesota Pulpwood Rates

SPECIAL TO PAPER

CRICAGO, Feb. 20,—A hearing before Examiner Gerry of the Interstate Commerce Commission in the matter of the Wisconsin Pulp and Paper Manufacturers' complaint as to pulpwood rates in Minnesota was held in the Federal building, Tuesday, February 18, the session lasting the entire day. The paper manufacturers complain that the rates on pulpwood from Minnesota points are averaging and discriminators.

manufacturers compain that the rates of paperson from Manuschiners compaint that the rates of paperson from Manuschiners that the rates of paperson from Manuschiners that the rates of paperson from Manuschiners and Manuschiners (C. E. Babcock; George F. Steele; H. A. Fannon, and Messrs. Taylor and Hatton representations of the representation of the r

senting the pulpwood interests.

All the railroads in the states of Wisconsin and Minnesota. were represented by traffic managers and counsel. If the freight reductions asked by the papermakers are granted it will mean a saving of about \$100,000 annually.

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and binders took out of the state strong boxes the sum of \$5,933.00. Each legislature either creates new state departments or adds to the work of the old ones and the publicity bills keep growing apace. It is also pointed out that during the past year, fortyseven state departments issued reports or in some other manner had to use the services of a printer. During the special sessions the legislative printing and binding bills amounted to \$21,146.08. It is argued by those who are backing the measure that inasmuch as there is such a considerable amount of money expended for printing among private concerns it would be a judicious move for the legislature to provide facilities whereby the common-

for the legislature to provide facilities whereby the common-wealth might be able to do its own printing.

The Ohio state labor commissioner, who has just completed a tour of inspection of the factories throughout the Miami Valley stated several days ago that the general conditions among the various industires are now beyond normal. He stated that the outlook for an increase in business is exceptionally encouraging and had only one feature that he said is worthy of regret. explained in this connection that a deplorable condition prevails in many factories with reference to the matter of employing women and children and he advised that a law be enacted providing that women shall not be required to work more than forty-eight hours a week nor more than eight hours a day. also favored the raising of the school age of both boys and girls from fourteen to sixteen years.

Mr. Wilson Recovers Health in Cuba

[SPECIAL TO PAPER]

MARION, IND., Feb. 22—J. Wood Wilson, president of the Marion Paper Company and vice president of the Marion National Bank, who has been critically ill for several weeks, is improving. Weeks ago it was planned to remove him to the south. His condition would not permit his removal until a

Accompanied by State Revenue Collector Elam Neal, Indianapolis, he was taken to Cuba for an extended stay. received from him today says he is improving rapidly and that he will be strong enough to return home with the advent of

warmer weather.

Mr. Wilson has been in poor health since his return to Marion in the summer from nearly a year's honeymoon around the world.

While at Japan on the trip he contracted fever and was in a serious condition for a time. He has never fully recovered.

During the winter months work on Mr. Wilson's new \$60,000 home for his bride has continued. The construction work has been completed. Plumbers, decorators and tile floor men have their work well along. The Wilsons expect to get into their new home in May.

Marion Paper Co. Gives Mr. Gable a Holiday

[SPECIAL TO PAPER]

MARION, IND., Feb. 22-For the first time in thirteen years Harry A. Gable, treasurer and general manager of the Marion Paper Company, is absent from the city on an extended pleasure trip. With his wife he is spending three months in traveling the western states. His first vacation in thirteen years was taken at this season of the year that he might escape the winter weather

Thirteen years ago the Marion Paper Company placed its mill Thirteen years ago the Marion Paper Company placed its mill in North Marion in operation. Harry Gable assumed charge of its management then. He has continued in the position of manager since. During that time week-end vacations are all business have permitted him to enjoy. Several years ago he planned an extended trip only to be elected treasurer of the company. The added duties and responsibilities made a vacation impossible

cation impossible.

The mill began operations in 1889, employing but twenty men.
The production capacity was small. Today the mill is one of the largest in Indiana. Its capacity has been increased many times. Special attention is given to the manufacture of jute and other pulp boards. Probably 50 per cent of the product of the mill finds a market in Marion. Printing houses, paper box companies, tablet manufacturers, bakerics, laundries and a firm manufacturing building materials from pulp boards are among the heaviest consumers. The plant operates day and night throughout the year with the exception of Saturday nights.
Stockholders of the Marion Paper Company insisted that Mr.

Gable take an extended vacation at this time, declaring he has devoted years to making the business a success even giving his annual vacation period to the business with the result it has not only grown beyond all expectations, but that he has earned an extended vacation.

"Three months is a long time for the head man of a business

to be away, but we feel Gable has earned a long vacation,

Col. J. H. McCulloch, vice president of the company. "An anyway," he continued, "Louis Gable, the bookkeeper, has been with the company so long he will be able to conduct matters in a satisfactorally manner until the manager returns.

At this time Harry Gable and wife are at Los Angeles, California. With the advent of spring weather they will begin an extended tour of the western states. Mr. Gable will make inspection trips through a number of western paper mills.

Pennsylvania Foresters in Session

SPECIAL TO PAPER

YORK, PA., Feb. 22—The sixth annual convention of the foresters in the employment of the Pennsylvania state department of forestry was held last Tuesday, Wednesday and Thursday in Harrisburg. The convention was held in the senate caucus room at the capitol, with two sessions each day during the three days. The foresters who now number 54, and the rangers who are 110 in number, scattered about the state, are accusto to meet in Harrisburg every year for exchange of ideas and for discussion of the problems attending their work in the 982,336 acres of forest reserves of the state. The discussions dealt with acres of forest reserves of the state. The discussions dealt with the forestry work especially, the individual problems with which the men find themselves confronted.

Their work is seattered through twenty-six counties and as the state will soon have over 1,000,000 acres the work will be more important than ever owing to the value of the timber, stone, clay, sand and other resources which are commencing to return a good income to the commonwealth. They are also in charge

of the fire prevention work.

In connection with the meeting a banquet was held by 60 alumni and friends of the Pennsylvania State Forestry association, of Mont Alto, last Tuesday evening at 9.45 o'clock at the

Bolton House. The following men made addresses:
D. K. Warfield, Commissioner R. S. Couklin, Deputy J. C. Williams, J. H. Wirt, Dr. J. T. Rothrock, the father of the state forestry department; Joseph S. Yellick and J. Linn Harris. committee which had charge of the arrangements for the banquet was composed of:
James E. McNeal, N. R. McNaughton, John W. Kaller,
W. G. Conklin and John W. Seltzer.

Notes of the Wallpaper Industry

[SPECIAL TO PAPER]

YORK, PA., Feb. 22—The Schmidt & Ault Paper Company, this city, is contemplating some big improvements to its mill. The mill will be considerably enlarged and some new machinery will be installed

The heavy log boom that was built across the mill race by the York Haven Paper company some time ago to prevent the ice from getting into the large turbines was broken down by the

heavy ice jam in the Susquehanna river this week.

The ice harvest of the P. H. Glatfelter Paper company, Spring Grove, was finished this week and was stored away in the company's 1,700 ton ice house. The ice was cut from the large dam at the mill and averaged six to eight inches in thickness. This was one of the largest ice harvests made in this place for several years. Emanuel Nace and George Hershey were in charge of the Thirty men were employed in cutting and housing the work.

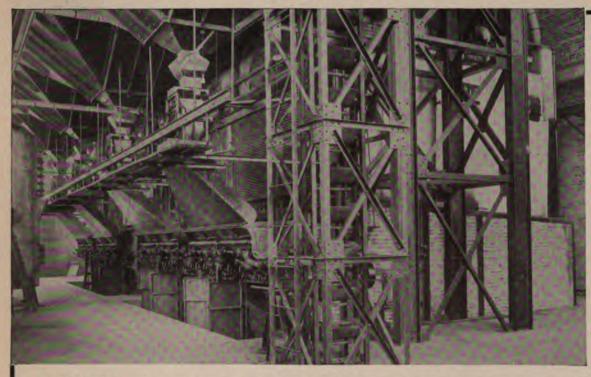
ice.

The three local wallpaper mills, the York Wall Paper mill, Gilbert Wall Paper mill and the York Card and Paper Company have never been busier in their history and the first two mills have been running a day and night shift since November 1, last. Heavy shipments of wallpaper are being made daily from the plants. The activity in the industry in York is partly due to the shutdown of the mills during the eleven weeks last fall at the time of the strike of the printers and color mixers.

Best Banquet Ever Held

[SPECIAL TO PAPER]

WATERTOWN, Feb. 24-The annual banquet of the American Paper and Pulp Association was attended by a large number of men from this city and section, who are interested either directly or indirectly in the manufacture of pulp and paper. Declaring the banquet to be the best the association had ever held, they returned home Friday night. They were, Mayor Francis M. Hugo, Robert J. Buck, former Senator George H. Cobb, Stuart D. Lansing, Sameul A. Upham, Wooster O. Ball, E. W. Elsworth. Willis H. Howes, George W. Knowlton, George C. Sherman, Virgil K. Kellogg, Frank L. Moore, B. L. Taylor and George Tripp of this city; Frank P. Wilder, W. B. Van Allen and H. James Cadwell, of Carthage; G. H. P. Gould, of Lynn Rells and James E. Campbell of Devter. Falls and James E. Campbell, of Dexter. BLACK RIVE



Westinghouse New Model Roney Stokers, at the plant of the Commonwealth Power Co., Milwaukee,

MONEY spent on engineering talent is generally recognized as a good investment. This applies particularly in stoker work. A boiler plant equipped with Westinghouse New Model Roney Stokers, under the recommendations of our Stoker Engineering Department, will produce steam at a lower total cost than can be obtained with any other equipment.

The Westinghouse Machine Company,

East Pittsburgh, Pa.

The Orr Felt & Blanket Co.

PIQUA, OHIO

All Grades of Paper Makers

FELTS AND JACKETS

We weave endles: felts. A trial is solicited. We have standing orders for monthly shipments with some of the largest manufacturers. This should be convincing.







NEW YORK, February 21, 1913.

MECHANICAL PULP

Conditions governing the market for ground wood have undergone no change of consequence during the week under review, and the firmness of values is well sustained, in the face of large withdrawals on outstanding contracts to meet the immediate requirements of newsprint and wrapping paper consumers. Stocks of wood at milling centers are moderate. This together with strong European advices on ground wood serves to strengthen the views of holders.

DOMESTIC AND FOREIGN PULP

The firmness of the market appears well sustained as a result of heavy withdrawals on outstanding orders and bullish reports from shipping centers, noting a scarcity of supply. In the nature of sales covering distant shipments, little has been done in the interval, due partly to buyers and sellers having purchased full allotments for delivery up to April 1. In numerous quarters, higher prices are looked for covering shipments over April, May, and June, 1913, based wholly on limited supplies of wood.

Sulphite, foreign-	
Bleached, ex dock . 2.80 @	
Unbl'h'd, ex dock .2.05 @	2.35
Sulphite, domestic-	
Bleached 2.70 @ Unbleached 2.15 @	
Soda, domestic—	2.30
Bleached 2.25 @	2.35

BAGGING, ROPE, ETC.

There continues a steady movement of all varieties into channels of consumption. Favorable mild weather conditions are having a stimulating influence on the demand. Owing to moderate spot stocks, and strong cable advices from primary markets, prices are maintained more firmly. We hear of sales at slight concessions on sizable lots ex-dock and on the spot.

Gunny, No. 1-		
Domestic 1.50	@	1,60
Foreign 1.50	@	1.60
Light Burlap1.20		
Mixed Bagging85		
Sound Bagging95		
Wool Tares, light 1.20	@	1.30

Wool Tares, heavy . 1.20 @ 1.25 Foreign Manila Rope 2.45-@ 2.60 Domestic Rope . . . 2.45 @ 2.60 New Burlap Cuttings 1.45 @ 1.65 Flax Waste, washed . 1.80 @ 2.85

DOMESTIC RAGS

Under a seasonable demand and a steady movement of supplies into consumption, prices as a rule are well maintained. Inquiries for cuttings and whites are brisk and in some quarters slight premiums over current quotations have been paid, due to light offerings of selected stock. The firmness of values for all kinds of rags abroad serves to sustain a firm feeling among dealers.

German Blue Cot-		
tons	0	1.70
Dutch Blues1.80		
Light Prints1.80		
Extra Light Prints 2.00	@	2.25
New Mixed Cuttings 2.00	0	2.70
New Light Cuttings .3.75	@	4.50

Old Linen, White 3.75 @	5.25
Old Linen, Gray 2.75 @	4.59
German Colored Cot-	
tons1.35 @	
Medium Light Prints1.50 @	
Old Linen Blues2.37-@	
Dark Colored Cottons 1.20 @	1.30

FOREIGN RAGS

Cuttings of all descriptions rule firm in consequence of increased inquiries and fair sales of parcels in various positions. Other varieties of rags are meeting with a steady demand and prospects for lower values in the near future are not deemed favorable. Stocks here and abroad are only moderate and held at about former quotations.

New Shirt Cuttings,
No. 1
New Shirt Cuttings, No. 2 3.75 @ 4.30
Fancy Shirt Cuttings 3.90 @ 4.00
New Blue Cottons3.25 @ 3.35
New Dark Cottons 1.00 @ 1.10
New Black Cottons. 1.25 @ 2.00

No. 1 Whites 4.00	@	4.20	
Solled Whites, street . 1.55	@	1.75	
Soiled Whites, house, 2,25	0	2.30	
Thirds and Blues 1.75	6	1.85	
	Soiled Whites, street 1,55 Soiled Whites, house 2,25 Thirds and Blues 1,75 Satinette Garments .1,00 No. 1 Satinettes95 No. 3 Satinettes85 No. 1 Tailors' Rags45	Soiled Whites, street 1,55 @ Soiled Whites, house 2,25 @ Thirds and Blues 1,75 @ Satinette Garments .1,00 @ No. 1 Satinettes	No. 1 Whites

OLD PAPERS

In most quarters dealers report a seasonable demand which, however, is mostly confined to medium and better qualities. Low grades of papers are in limited request with some offerings of sizable lines at a shade below current quoted ranges. Stocks on the whole are fair, but no special selling pressure is apparent.

No. 1 Hard White		
Shavings2.45	@	2.60
No. 2 Hard White		
Shavings2.10	0	2.15
No. 1 Soft White	-	1 66
Shavings1.80 No. 1 Colored	(3)	1,90
Shavings	a	.85
No. 2 Colored	9	.00
Shavings	0	.60
Magazine Flat Stock .90	ä	1.00
No. 1. Crumpled 80		
Solid Ledger Stock 1.65		
Ledger Stock 1.40	0	1,45
No. 1 White News 1.25	@	1.30

Extra New Manila		
Outtings	0	1.40
New Manila Cuttings1.05	6	1.10
No. 1 Old Manila 60	0	.70
No. 2 Old Manila 45	0	.50
New Box Board Chips .55	6	.60
Bogus and Mill	м	
Wrappers	0	,60
Strictly Overissue	м	
News	04	-70
Folded News	0	.60
No. 1 Mixed News 48	0	.50
No. 1 Mixed Pap urs4214		.45
Common Papers35		.40
The second secon		

TWINES

Withdrawals on outstanding contracts are large and manufacturers in some quarters are still behind two to three weeks on their deliveries. New business booked in the interval has been fair, but high prices asked for twines and rope is restricting sales to some extent. Quotations are well sustained on strong markets for the raw material and light spot stocks.

Sisal Hay 8 1/2	0	9
Sisal Lath Yarn 7 16		8
Manila Rope14	@	15
Manila Rope No. 2 . 11	@	13
Jute Rope 7 1/2	@	8
Jute Wrappings, 2		
to 6 ply—	2	44
No. 112	0	13
No. 211		12
Jute Twines, 18121/2		131/2
Jute Twines, 2412		13
Jute Twines, 36111/2	0	1214

Jute Twines, 416 & 6 916	@	10
Marline Jute, 416 . 916	0	10
Marline Jute. 6 91/2	0	10
Marline Jute, 7 9	0	934
Marline Jute, 8 & 9 . 814	0	9
B. C. Hemp, 18 18		19
B C. Hemp, 24 1734	0	18
B. C. Hemp, 36 17	@	18
B. Hemp, 1819	6	20
R. Hemp, 241836		1936
B. Hemp, 36 18	-	19
Amer. Hemp, 416&613	0	14

CHEMICALS

The demand covering various papermaking chemicals is steady and under moderate spot supplies, prices on the whole are firmly sustained. Bleaching powder is a shade firmer under smaller spot stocks and increased sales. Holders are now asking 1.38 cent and upward for spot lots, which price is slightly above last values paid. No change in caustic soda has been reported and during the interval prices ruled steady on a good inquiry with sales at 1.60 cent and upward for 60 per cent f. o. b. plant. Orders for sal soda involved fair lines of spot supplies at 60 cents and upward and 18/s cents and upward for barrelled and concentrated as to terms of sale, respectively. Brimstone is finding a steady outlet at firm values, say from \$22 and upward per ton, as to terms of sale. Under a seasonable demand for alum, values are steady at 17/s cents and upward and 28/s cents and upward for ground and powdered as to terms of sale, respectively. China clay is firm, owing to limited supplies on spot, but no price changes have been announced, holders still quoting \$8 and upward and \$11.50 and upward per ton, as to quantity and quality.





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Parsons Trading Company

Paper and Pulp

Imports—Rags and Paper Stock

AT NEW YORK

Week Ended February 22, 1913.

Castle, Gottheil & Overton, Str. Francisco, Hull, 100 bs. 166 bs. rags, 64 bs. bagging.

Stratford Oakum Co., Str. Minnetonka, London, 71 coils, 53 bs. old rope

Castle, Gottheil & Overton, Str. California, Glasgow, 25 bs. old twines.

Felix Salomon & Co., Str. Volturno, Rotterdam, 78 bs. rags.

Felix Salomon & Co. Str. Niagara, Havre, 207 bs. rags. E. Butterworth & Co., by same, 101 bs. new cuttings.

Castle, Gottheil & Overton, Str. Chicago, Havre, 187 bs. 109 bs.

rags, 16 bs. bagging. Salomon Bros. & Co., Str. Uranium, Rotterdam, 145 bs. rags. A. Katzenstein, Str. Neckar, Bremen, 136 bs. rags, 44 bs. old bagging.

E. Butterworth & Co., by same, 58 bs. old rags.

Perkins, Goodwin & Co., by same, 65 bs. bagging, 85 bs. rags. E. Butterworth & Co., Str. Civic, Liverpool, 6 coils old rope.

E. Butterworth & Co., Str. Patricia, Hamburg, 41 bs. rags, 19

bs. new cuttings.

M. O'Meara & Co., Str. Nieuw Amsterdam, 141 bs. bagging.

Castle, Gottheil & Overton, Str. Dakotan, Puerto Mexico, 35 bs. rags.

Joseph Lipman, by same, 46 bs. scrap rope.

Joseph Lipman, by same, 84 bs. rags.

E. Butterworth & Co., Str. Toronto, Hull, 40 bs. old hemp twines, 167 bs. cotton rags, 111 bs. new cuttings, 186 bs.

scrap bagging.
Felix Salomon & Co., by same, 704 bs. rags.
Salomon Bros. & Co., by same, 130 bs. bagging.

Woodpulp

Felix Salomon & Co., Str. Florida, Copenhagen, 2,460 bs. (307

J. Andersen & Co., by same, 7,880 bs. (985 tons).

M. Gottesman & Son, by same, 400 bs. (50 tons). Scandinavian American Trading Co., by same, 700 sacks, (50 tons).

Felix Salomon & Cc., Str. Argentina, Trieste, 700 bs. (100 tons). Price & Pierce, Str. Grangewood, Copenhagen, 2,200 bs. (275 tons).

Parson Trading Co., by same, 400 bs. (80 tons).

Felix Salomon & Co., by same, 2320 bs. (290 tons). Scandinavian American Trading Co., by same, 200 bs. (25 tons). R. Helwig, Str. Nieuw Amsterdam, Rotterdam, 796 bs. (99 tons). Felix Salomon & Co., Str. Finland, Antwerp, 110 bs. (22 tons)

AT BOSTON

Castle, Gottheil & Overton, Str. Leonards, Rotterdam, 833 bs.

(184 tons) woodpulp. M. Gottesman & Son, Str. Florida, Christiania, 520 bs. (80 tons) woodpulp.

woodpulp.

Perkins, Goodwin & Co., by same, 200 bs. (25 tons) woodpulp.

Felix Salomon & Co., by same, 6,680 bs. (835 tons) woodpulp.

J. Andersen & Co., by same, 5,400 bs. (675 tons) woodpulp.

E. Butterworth & Co., by same, 160 bs. (20 tons) woodpulp.

Stratford Oakum Co., by same, 319 bz. old rope.

E. M. Sergeant & Co., by same, Copenhagen, 864 bs. (108 tons woodpulp.

Price & Pierce, by same, 64 bs. (8 tons) woodpulp.

AT BALTIMORE

Scandinavian-American Trading Co., Str. Kentucky, Copenhagen, 240 bs. (30 tons), 400 bs. (50 tons) woodpulp.
Scandinavian American Trading Co., Str. Naneric, Hamburg 160 bs. (20 tons) 240 bs. (30 tons) woodpulp.

AT NEW ORLEANS

- M. Gottesman & Co., Str. Saxonia, Bremen, 520 bs. (150 tons) woodpulp.
- M. Gottesman & Son, Str. Lucia, Trieste, 594bs. (100 tons) woodpulp.

AT NEWPORT NEWS

M. Gottesman & Son, Str. Noruega, Gottenburg, 200 bs. (30 tons) woodpulp.

AT GALVESTON

Castle, Gottheil & Overton, Str. Bradenburg, Bremen, 53 bs' rags.

AT PHILADELPHIA

M. Gottesman & Son, Str. Chemnitz, Bremen, 260 bs. (75 tons) woodpulp.

Felix Salomon & Co., by same, 440 bs. (55 tons) woodpulp. Castle, Gottheil & Overton, Str. Manchester Merchant, Manchester, 323 bs. 87 bs. 200 bs. waste paper, 66 bs. 60 is. 4 Man-

bs. rags, 44 bs. 9 bs. 12 bs., 32 bs. new cuttings.

os. rags, 94 bs. 9 bs. 12 bs., 52 bs. new cuttings.

Castle, Gottheil & Overton, Str. Haverford, Liverpool, 52 bs.
53 bs. waste paper.

Castle, Gottheil & Overton, Str. Manchester Maniner, Manchester, 114 bs., 196 bs., 57 bs. waste paper; 92 bs. bagging 216 bs., 39 bs. rags, 83 bs. new cuttings.

Price & Pierce, Str. Kenturcky, Copenhagen, 1,996 bs. (249)

tons) woodpulp.

R. Helwig, by same, 350 bs. (70 tons) woodpulp.

Felix Salomon & Co., by same, 3,880 bs. (445 tons) wood pulp. E. Butterworth & Co., by same, Christiania, 500 bs. (100 tons)

woodpulp. J. Andersen & Co., by same, 1,360 bs. (170 tons) woodpulp. Dill & Collins, Str. Start Point, London, 220 bs. waste paper. Castle, Gotteheil & Overton, Str. Mongolian, Glasgow. 75-bs. 145 bs. rags

Castle, Gottheil & Overton, Str. South Point, London, 91 bs. waste paper.

Chemicals

George Knowles & Son, Str. Richmond, Fowey, 338 tons china

clay. John W. Higman Co., Inc., by same, 600 csks (759 tons 9 cwt.) china clay.

Moore & Munger, by same, 940 csks. (2216 tons 10 cwt.) china clay.

J. L. & D. S. Riker, Str. Civic, Liverpool, 123 csks. bleaching powder.
A. Klipstein & Co., Str. Potsdam, Rotterdam, 90 csks. (77,800

lbs.) bleaching powder

J. L. & D. S. Riker, Str. Georgia, Liverpool, 15 bxs. caustic sods 120 csks, 110 cs. bleaching powder.

A New Firm of Pulpwood Importers

One of the interesting events of the past week in the paper trade was the announcement of the formation of a new company. trade was the announcement of the formation of a new company. for the importation and sale of foreign woodpulp in this country. The new company to be known as the Nilsen, Rantoul Company, Inc., with Consul Anth. B. Nilsen, of Anth. B. Nilsen & Company, Ltd., Christiana. Norway, as president, and C. W. Rantoul, jr., of New York, as vice president.

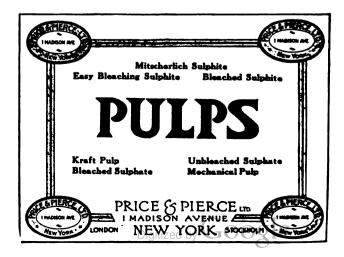
Mr. Nilsen is one of the most prominent men in the pulp industry in Norway and his concern controls the output of the well known Hurum, Storbrofos & Skrankefos pulp mills, as well as other Scandinavian mills.

as other Scandinavian mills:

as other Scandinavian mills:

Mr. Rantoul has a very wide acquaintance in the paper trade in the United States, having been connected with it for a great many years in the various branches of the business.

He has also been the head of the C. W. Rantoul Company. The new combeen the head of the C. W. Rantoul Company. The new company will act as sole distributors for the United States and Canada of the products of the mills mentioned. The headquarters of the new company will be at 41 Park Row, New York.



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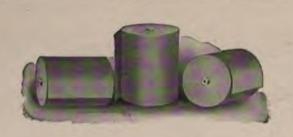
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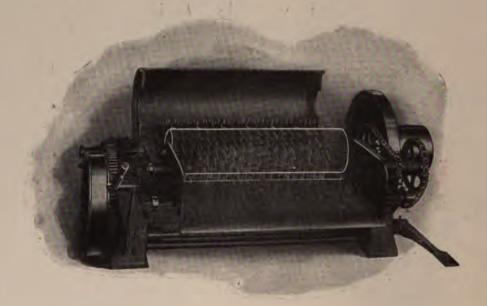


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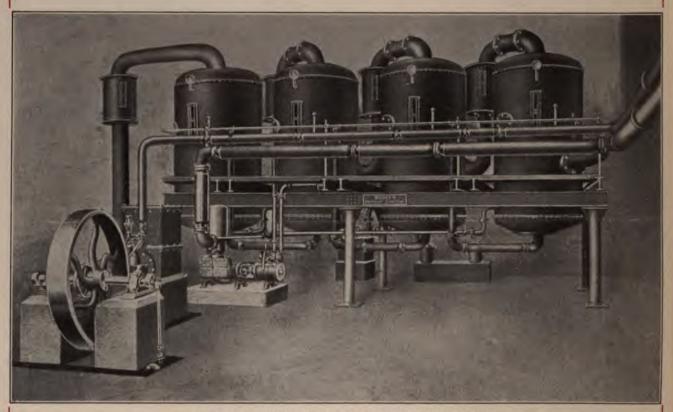
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Paper and Pulp Development in Canada

Forestry Work of the Papermakers-An Account of the Rise of Grand' Mère

By ELLWOOD WILSON

Superintendent of the Forestry Division of the Laurentide Paper Company



S the demand for paper, especially that made from woodpulp increases, its manufacturers are beginning to wonder where their supply of raw material for the future is to come from. Already the shortage of the American supply is being felt and the price is steadily rising. When this condition was first apparent, the American mills

began to buy timber lands in Canada and to import pulpwood. Then the provincial governments who are the owners of the forests decided that it was a foolish policy to sell raw material at a low price when they, controlling the supply, might just as well have the manufacturer's profit also and the export of all wood cut on Crown lands was forbidden, unless it was first manufactured into pulp, paper, lumber or some other form of wood product. This is a wise position, especially in the face of the large emigration of French Canadians to the manufacturing towns of New England, as it will give the people work at home and the larger profits will be used to develop the localities where the raw material is produced.

Canada has probably the largest remaining supply of pulpwood on the continent and especially the eastern sections, where, owing to the high latitude and the long winters, the trees are small and the conditions favorable for the growth of spruce and fir, the pulpwood trees par

excellence.

Of all the provinces which form the Dominion, Quebec is in many respects the most interesting, representing as it does one of the oldest civilizations on the American continent, differing from its sister provinces in language and religion, and retaining traces of the old French tongue and mediæval customs. quarters of the population are French, and the majority of these, farmers, "habitants," who earn their living in the winter by working in the woods. Along in late August and early in September, when the crops are all gathered in, they go to some one of the big lumber or pulp companies and make a contract to cut and haul so many thousand logs $13\frac{1}{2}$ feet long. This is called jobbing and the man a jobber. The jobber takes his sons, if he has any over fifteen—if not, he hires a man or two-with his horses and sleighs and, sometimes, even his whole family, and goes off into the woods, frequently a hundred or more miles from home. Here he gets provisions from the nearest company depot, and building a log camp, walls, roof and floor all of logs, he settles himself for the winter. The camp has one room for the people and one for the horses, sometimes all are in the same room. Bunks of poles are built along the wall, two or three windows about 2×1 ft., are cut in the walls, a rough table and a couple of benches are hewed out and a big iron stove set up. Here the jobber spends the winter, cutting and piling logs until Christmas, going home then for his "devoir, as commanded by the Church, having a jolly time with friends until "Little Xmas," and then back to haul his logs on one-horse sleighs to the nearest lake or river, and going home in March.

In the days of the lumberman this was all, but now have come, dotted here and there like islands throughout the province, the pulp and paper mills, offering indoor labor, bringing in new ideas, founding towns and bringing modern "civilization," which, while not an unmixed blessing, is progress, and is bringing light into a darkness almost mediæval. The first requisites of a pulp mill are waterpower—no other can grind wood profitably—a plentiful supply of clean water, and a river to carry the logs on their long journey from the forest to the mill, covering, in some cases, two years. So the mill must locate beside a waterfall, and as these occur in most out-of-the-way places, towns of one to five thousand souls have sprung up in the heart of the wilderness. As the entire personnel of such companies must be brought in from other places, it is necessary to provide enough of the comforts and conveniences of modern life to keep them. Some of the mills have given just enough, but the wiser ones have gone much further.

As wood of coniferous trees is the raw material of pulp and paper, there must be an abundant, accessible and sufficiently cheap supply. All of the larger mills, therefore, own their own forests, but not absolutely, and here it is necessary to explain the wonderfully advantageous position of Canada from the standpoint of conservation. All lands in Canada, as originally in the United States, belonged to the Crown, and while, in the latter, the Government after the War of Independence, in the effort to encourage colonization, parted with them carelessly and recklessly, by wise

foresight, Canada acted differently.

The Governments of the several provinces have reserved all rights to the lands, forests, minerals, waterpowers and game. This is an ideal situation from the standpoint of conservation and on the whole the Government of the Province of Quebec has been faithful to its trust. In the past, some waterpowers have been granted or sold outright, but the present policy is only to lease these sources of wealth for a term of years, the leases being subject to renewal and adjustment of the rentals as values increase. Lands suitable for agriculture are sold to bona fide settlers at reasonable rates, the only requirements being that the settler shall clear up a certain amount of land and build a dwelling and a barn. Townships have been opened up in different parts of the Province and the Department of Colonization has built roads, making these accessible.

Licenses to mine are also issued and enough freehold land for building purposes and for a supply of mine timbers is sold the licensee, who must pay an annual

royalty on his output.

Licenses to hunt and fish are sold to individuals and clubs at a yearly rental and the revenue from this-

source for the past year was \$116,080.

The right to cut timber is also leased, leases being renewed annually in perpetuity so long as the regulations are complied with, at a ground rent of five dollar per square mile per year, and a stumpage tax of \$1.3 per thousand feet board measure. These fees, are however, subject to adjustment about every ten years that the Government may participate in the rise timber values. The only difficulty which has arisen where timber speculators or settlers have applied and been granted lands already under timber lice.



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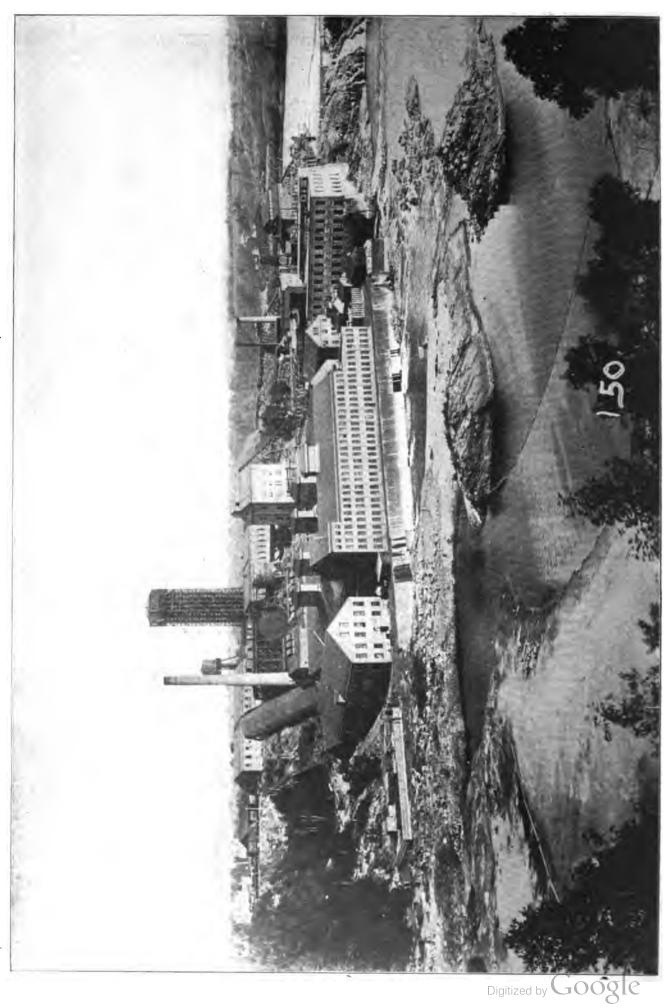
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and have then cut off the timber and in many cases sold it to the original licensee. The law allows the timber licensee to take the timber off lots sold to settlers, up to the 30th of April following the sale, but as the settler is usually smart enough to make his application after the licensee has finished his winter operations this provision of the law is of little benefit to him. The only remedy for this evil lies in a proper classification of lands into those fit for agriculture and those suitable only for growing timber. The former should be laid out for settlement and if any part is in territory already under license an estimate of the timber should be made and the licensee reimbursed for the timber so removed from his holding. The difficulty with the present system is that the settler picks out the land he wants and then applies to the Government to sell it to him. This should not be allowed. An examination of unsettled territory should be made and the sections where the soil is good for farming, and so situated that it has access to a market and a reasonable chance to be cultivated successfully, should be laid out into farms and withdrawn from timber leases, fair compensation being given to the license holder, and then allotted for settlement. This would entirely prevent speculation and timber stealing and would give the settler a much better chance of success. The present Government has inaugurated this policy in the Abitibi district and it is to be hoped will continue it.

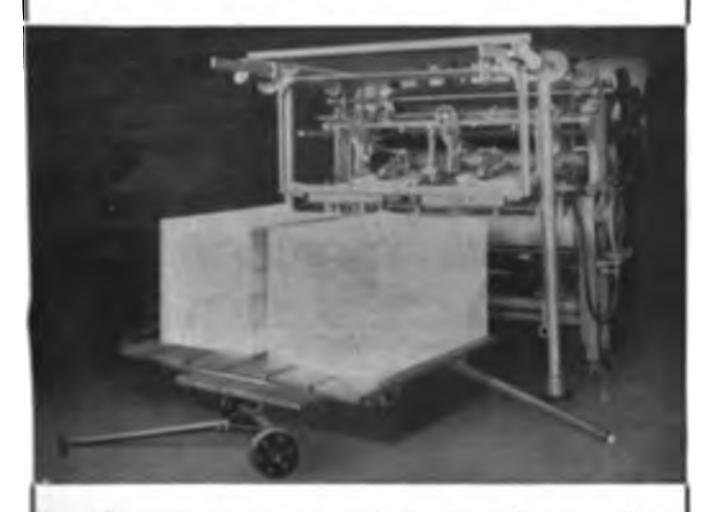
In this connection there is another much needed reform in opening up lands for settlement. Each settler should be compelled to keep a certain portion of his holding in timber and not be allowed to cut more than the yearly growth, so that he would always have a supply of timber for building, sleighs, other farm uses, and for firewood. This policy was employed by the late Sir Joly de Lotbiniere in selling lands on his seigniory and has been most successful. The scarcity of firewood, on which the rural population is entirely dependent for fuel, is becoming critical and in the neighborhood of the small towns, wood is now being hauled distances of twelve and fifteen miles, and the price has advanced to \$3.50 for a cord of two foot wood. The settler gets out the timber for his house and barn and then cuts down every tree around his buildings and on the portion he wishes to plow, and instead of cutting it up for firewood and piling for a winter supply, he sets fire to it all, just as it lies, and wood which would last him for many winters goes up in smoke.

At first the Government protected the forests from fire itself, charging a fire tax, but this protection was so poor, owing to inefficient organization and too much politics, that the licensees petitioned to be allowed to protect their lands at their own expense and this request was granted. The licensees choose their own rangers, who are commissioned by the Government. This system has worked fairly well, except that non-resident holders and some of the owners of small holdings often failed to put out rangers. At the beginning of 1912, the license holders formed the St. Maurice Forest Protective Association to protect their holdings. This is the largest cooperative association on the continent, controlling over 7,000,000 acres of timber lands. Rangers on gasoline speeders patrol the railway lines, following all trains; and crews of two men each, with tent, canoe and camping outfit, patrol the rivers, which are the only highways through the wilderness. One lookout station has been built, and the coming season will see several more finished and a number of miles of telephone lines also. The cost for the season has been a little less than one-quarter of a cent per



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GRAND' MERE FALLS AND LAURENTIDE PAPER MILLS

acre, and it is hoped that a more liberal appropriation can be secured. The Quebec Government, through its Minister of Crown Lands, Mr. Allard, has been most sympathetic with this work and has agreed to contribute \$3,000 toward its cost for the current year.

The forestry policy of this province has been an advanced one. For many years there has been a diameter limit below which no one was allowed to cut, and a law has been on the statute books giving anyone who plants an acre of land in trees the right to choose Government lands which may be for sale to the value of \$12. About eight years ago the Premier chose two young French Canadians, Messrs. Piche and Bedard, and sent them to the Yale Forestry School, and then to study in Europe. After completing their studies, he established a Department of Forestry placing them in control, and they have organized this work and made considerable progress along forestry lines. As there was a great lack of trained men, especially those who could speak French, a forestry school was established as a branch of the great University of Laval in Quebec, and the students obtain practical experience as Government rangers and inspectors during their course, and after graduation are given higher positions.

A forest nursery has also been started, where the students have practical training in planting work. In some sections of the province, there are considerable areas of sand dunes, and these will be planted up as rapidly as possible. The great need is for men with some training in forestry who can travel in the woods. There are few sections on this continent where travelling is so difficult. The only avenues are the rivers, with the lakes which empty into them, and the former are filled with rapids which make the descents dangerous and the swiftness of the current makes the ascents most toilsome. In running rapids much experience is neces-

sary, and many lives are lost each year in trying them. As the old trappers die out, few men go into the woods to any extent, and it is almost impossible to get enough woodsmen to act as fire guards and forest rangers. The present generation of natives are going to the towns and into the factories and the forest no longer calls to them as to their forbears. So the only hope of building up a corps of men to care for the forest lies in establishing ranger schools for natives, which will fit the men for their work, giving them training in woodcraft and inculcating an esprit de corps, at the same time paying sufficient wages to make the work attractive. This will cost money, but the Government can well afford it, and it has certainly been proved in every industry that men who are satisfied with their pay and well cared for will turn out much more work than dissatisfied underpaid hirelings whose only object in life is to loaf on the job.

From the standpoint of conservation and of continuing revenue from the forests the pulp and paper companies are the ideal licensees; the large lumber companies coming second. The holder of a small territory who sells his cut or runs a small mill cannot afford to do anything but exploit his lands and get returns as quickly as possible. But with the larger companies, having millions of dollars invested in plants, dependent entirely on their holdings for raw material, the situation is entirely different. They must take care for the future. Here in Canada, as elsewhere on the American continent, this is just beginning to be realized, and, up to eight years ago, everyone acted as if the supply of timber was inexhaustible. You heard of the "inexhaustible timber supply." "our rich resources" on every hand. The most accessible timber was cut, the waste was prodigal, and fire was allowed to run unchecked. "Why, we have always had fires"! "We

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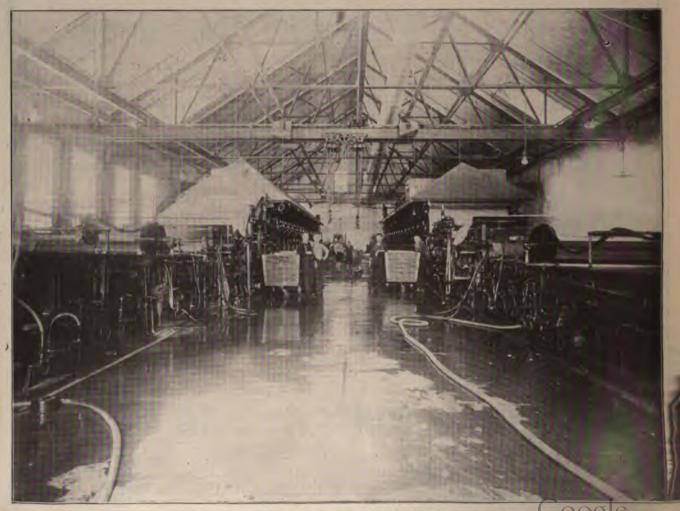
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can't afford to fill the woods with men." "We have timber enough to last forever"! All this in spite of the fact that the country is dotted with the evidences of past conflagrations. One fire about thirty-five years ago completely destroyed the timber on over three hundred square miles in one section. The situation was indeed a difficult one. Owing to the vast areas and the difficulty and expense of travel and the rigors of the climate, no maps had been made. The main rivers and large lakes and some of the timber holdings had been mapped, but only in the roughest way and no holders had any trustworthy information about their lands. The only people who knew anything were a few old foremen and woods bosses who had travelled the country and knew their way around and had a vague idea about what particular sections would yield—all of which information they kept under their hats.

About 1895 a small pulp company was formed to operate a fine waterpower on the St. Maurice river called the "Grand Mere," from the fact that right in the middle of the fall there is a rocky island which shows very distinctly the profile of an old woman. There is an Indian tradition of a maiden who waited for her lover until she became old and gray and then was turned into this rock. This company built a small village in the forest and commenced operations. The town was a long way from civilization, communication with Montreal and Quebec, the nearest cities, was difficult, as the railroads were in shocking condition, and in winter one never knew how long it might take to cover the eighty-six miles to Montreal. It took three days once, and it was always wise to take snow shoes, so as to be able to get to the nearest farm house for food.

The employees of the company lived in little frame shacks and had no conveniences and mighty few comforts. Things also went very badly financially and about 1903 the company was reorganized. The new manager realized that the first necessity was the comfort and wellbeing of the employees, and, as soon as he had gotten the company a little on its feet, began to build up a model village. When one realizes how much in advance of the time such an idea was and what it meant to change over and build up a whole community most of whose members were of a primitive type and spoke a different language and were naturally distrustful of strangers and strange ideas, it seems a large undertaking, and it showed broadmindedness, idealism and courage of the highest type.

The first step was to put the village in sanitary condition; sewers were built, a plentiful supply of pure spring water was obtained and a hospital built. The town had been a hotbed of typhoid fever, but in a year this was stamped out. It was necessary to discharge laborers occasionally because they would persist in drinking the polluted water and to forbid them working in the mill unless vaccinated. Then housing and office and mill conditions were improved and opportunities for recreation were provided; bowling alleys, tennis courts and a skating rink being provided. The younger men were encouraged to form hockey and baseball teams, and the success of the hockey and tennis teams in winning championships has done much to rouse local pride and to bring the people to united effort for the good of the place. Probably the most important improvement was a school. This is open to all the citizens and is fully equal to the best public schools in



TWO OF THE LARGE PAPER MACHINES IN THE LAURENTIDE MILE OF OOG

FITCHBURG PAPER CO.

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Manufacturers of

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SPECIAL HANGING PAPERS

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PACKING SHED OF THE LAURENTIDE PAPER CO. MILL, GRAND MERE, QUEBEC, CANADA

the United States, with an excellent kindergarten, and a manual training course for the boys and sewing classes for the girls. Then the improvement of the village was begun. A landscape architect was engaged and a plan for a "village beautiful" prepared. Old and un-sightly buildings were torn down, roads were laid out and macadamized, concrete sidewalks were built and beautiful elms planted along the roads, and masses of shrubbery placed where they would add to the general effect. Vines were trained over the buildings, and many buildings which were inharmonious were remodeled.

A beautiful park was laid out in the center of the village and here on summer afternoons and Saturday half holidays everyone gathers to watch the tennis matches. The park is not only good to look at, but gives the children a safe and healthful playground. A club with reading and assembly rooms, gymnasium and billiard rooms, is open to all and during the long winters is used for dances, amateur theatricals and concerts. Then labor conditions were immensely improved, working hours were shortened, guards were installed to prevent accidents from the machinery, wash rooms and lockers were provided, sanitary drinking fountains placed at convenient points and lighting and ventilation much improved. In summer the daylight saving plan is in operation, and the employees are free at four o'clock and have the long summer afternoons for healthy outdoor sports.

The social and spiritual sides of life were not neglected, aid was given to the struggling mission churches, and the people were encouraged to get together for the common good. One of the most helpful things was the

founding of a branch of the Victorian Order of Nurses. There are two great events of the year when all gather for a general good time - the "Christmas Tree" in the winter and the "Clam Bake" on Labor Day.

The manager has taken the position that well paid, comfortably housed and contented workmen are moneymakers for the company and has also taken the higher ground that the company owes these things to its employees. He thinks that men who feel that they are being well taken care of and are getting a "square deal" are getting their fair share of the profits obtained through their labor, and who have sufficient leisure time to devote to their families and their own advancement,

are a valuable asset for any concern.

In 1905, the forestry question was taken up, and the immense holdings of the Laurentide Company, over 2,300 square miles of timber lands, were investigated with a view to introducting practical forestry methods. Accurate surveys of all the company's holdings were commenced and have now been completed. The maps show all topographical details, the location of all burns, swamps and timber and the areas in the different types of the latter, and all lumbered areas. Stock has also been taken over a large part of the forest lands, so that the amounts and kinds of timber which may be cut are known. Volume tables have been prepared, the first for Canadian trees, and growth studies made of the different species. In 1908 the company began to plant, beginning with 5,000 trees, and plantations have been continued. Last year a small nursery was started, and this has been enlarged this year and will be still further developed Experiments are under way with different species in the hope of finding a ree which ATTIRRURY

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Paper Mill Supplies

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will be suitable for pulp and will grow faster than the native ones. Norway spruce is naturally the first to be tried. When this problem is settled all the company's

waste lands will be planted.

Experimental areas have been laid off in the forests and different methods of cutting are being experimented with, and the effect of these methods on natural reproduction and on the rate of grown on the trees remaining, determined. As timber grows scarcer and more inaccessible it is very necessary to find out which species will grow the most rapidly and which will give the largest yield of the most suitable raw material in the shortest time. A virgin forest is like a garden left to run wild, there are many weeds, many plants which though useful are not of the greatest value, and these are crowding and retarding the most useful ones and using up nourishment which could be employed to



GRAND' MERE, OR GRANDMOTHER ROCK The village of Grand' Mere, Quebec takes its name from this rock formation

better advantage. A virgin forest is really a poor business proposition, for the growth just about balances the loss through death and decay and the trees are so crowded that many make no growth at all and others are suppressed and forced into shapes which make them practically worthless from the lumberman's point of view. The hardwood trees in a spruce forest are really weeds as they take up the land and the nourishment which might produce the more valuable trees, and as they cannot be floated they are valueless. Also the fir is less valuable than the spruce for making paper and needs to be discouraged. The ideal forest from the standpoint of the paper manufacturer, is one in which spruce of all ages is growing to the best advantage, that is, where each tree has sufficient space and light to grow to its fullest capacity and to reach maturity in the shortest possible time. Such trees are working to the full capacity and earning the largest rate of interest. With but little trouble and with but a slight increase in lumbering costs a virgin forest can be changed over into such a one and will then continue to produce at its maximum capacity for all time. The general German practice has been to cut clean and replant, but the leading authorities are now coming around to the conviction that the best results for the forest, the soil, and the yield are obtained by cutting only the mature trees and keeping a stock of trees of different ages to make the tuture supply.

No manufacturer would consider he was managing well who allowed his machines to work at half their capacity, or who allowed his employees to waste half their time, and yet it is the general practice among holders of timber lands to let their forests work at far

less than half time and to produce far less than their maximum capacity, thinking, foolishly, that thereby they are cutting down their logging expenses and the cost of their raw material. They are doomed to have an unpleasant awakening from this dream when they will find that they have been penny wise and pound foolish. A Swedish forester, a thoroughly practical man, visiting in the United States and Canada, said that he was utterly at a loss to understand how men, who showed so much ability in the management of their plants, who were willing to spend thousands of dollars if they could but shorten some process or eliminate some waste and who were pushing every man and every machine to full capacity, should show such poor judgment and be so shortsighted in the management of their forests.

The management of the Laurentide Company is not following this course but is carrying on the experimental work outlined above so as to obtain the necessary information on which to base the future management of its

In 1908 the company started the first efficient fireprotection system and in 1909 persuaded the licensees to unite for the protection of the timber lands along the right-of-way of the new National Transcontinental Railway. This was the beginning of the Protective

Association mentioned previously.

A forest engineer, M. C. Small, was placed in charge of its logging operations, and under his efficient management an enormous amount of waste in the woods has been eliminated in the way of high stumps and large tops, burnt timber has been utilized, young growth better protected and there have been established better conditions for scalers and more careful methods of measurement. Roads have been opened up, telephone lines have been built, gasoline launches placed on the large rivers and comfortable quarters built for the men in charge of depots and for the inspectors and scalers. These men are furnished dog-teams to enable them to get over their work more quickly and comfortably. The logging department has instituted the first system of competent logging inspection ever tried here, and this season is trying the experiment of marking trees and looping tops under competent supervision. "Scientific lopping tops under competent supervision.



CLAM BAKE ON LABOR DAY AT GRAND' MERE

Management" has been in use for years and the cost keeping system of this department is a model.

The employees have also been given an opportunity to subscribe to the stock of the company and have taken advantage of it, and each one feels that he has a deep personal interest in its success.

The influence of all this work has been felt in the surrounding towns and country, and other companies have been encouraged by it to make a beginning along the same lines.

the same lines.

New Times...New Standards

SODA RECOVERY

Nothing Succeeds Like Success
That is why the

Zaremba Patent Evaporator

has come to the front so rapidly



Evaporative Rooms of hids Resonant Department Transmitted Word Voyens Poly & Paper Co Saranta Patent Transmitted to International

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LEACHING CELLS—CAUSTICIZING EQUIPMENT

ZAREMBA COMPANY, Morgan Bldg., BUFFALO

The Thilmany Sulphate Mill

THE accompanying photograph shows the new sulphate mill of the Thilmany Pulp & Paper Co., at Kaukauna, Wisconsin, which is just going into operation. The mill is located at Kaukauna, about half a mile down the river from the company's paper mills. The plant consists of seven buildings, in addition to a large office building, as follows: wood room, recovery room, digester room, screen room, wet machine room, boiler house and turbine room, pump house. The foundations of the buildings are very shallow, resting upon the natural stone, which outcrops at this place. The superstructure is of brick, with

"Across the Sands" without Felts

The friends in the paper trade of "Bill" Sheehan, the popular representative of the Albany Felt Company, Albany, N. Y., will probably be interested in knowing that this very estimable gentleman was slightly indisposed recently, and to all accounts had to go to the "shop" for repairs. Special wireless reports to PAPER intimate that "Bill" had a bad case of blistered feet and unfortunately for him he was deprived of his Albany felts as feet protunately for him he was deprived of his Albany fetts as feet protectors, on a recent occasion, when he attempted to accompany his friends on their annual pilgrimage to Mecca. "Bill" may have labored under the impression, so it is said, that Albany felts are a good thing for protection when one attempts to cross the hot sands, but to his dismay he is now a much wiser man, and in future will continue to peddle his goods among the paper mills. His friends hope that now he is a wiser man, that he will come better prepared when he takes one of these long journeys.



THE NEW SULPHATE MILL OF THE THILMANY PULP & PAPER CO. AT KAUKAUNA, WISCONSIN

steel roof trusses and cement tile roof. All floors are concrete. There is nothing in the plant to burn. There is a concrete smoke stack 200 feet high, and steel water tank of 60,000 gallons capacity. Wickes upright water tube boilers are used, with General Electric-Curtis turbo-generator. All machinery is electrically driven, in most cases with direct-connected motors.

The plant is favored by being able to make use of a natural settling basin, in the shape of a disused stone quarry, of a capacity of 15,000,000 gallons. Water used in the mill has ample time for sedimentation. The quarry reservoir is under control, so that a plentiful supply of clear water will be available during times when the river water may be dirty. The capacity of the plant is thirty tons a day. The product is being used in the manufacture of the company's papers.

H. H. "Supatone" Conklin, representative of the Wanaque River Paper Company, New York, has just returned from a business trip of several weeks through the West, going as far as St. Louis, Mr. Conklin says he found business conditions in steellent shape, especially among jobbers handling his company's product "Supatone," the uncoated halftone paper.

A Specialist in Papermill Insurance

In his travels recently the representative of PAPER had occasion to meet Frederic B. Bave, a member of the firm of Brown and Bave, 454 Broadway, Albany, N. Y., general agents for the Massachusetts Bonding and Insurance Co., and other casualty lines. Mr. Bave is well known in the paper trade, having been formerly in charge of the insurance and taxes of the International Paper Company, with headquarters at the main office in New York. Because of his special knowledge of paper mill insurance his firm continues to specialize on this class of insurance work. His partner, J. C. Brown, is a well known insurance man, having been in the business for many years.

Paper and Stationery Exhibition in Berlin

The royal ministry of public works announces that the Central Association of German Paper and Stationery Retailers in Berlin is arranging for a special exhibition in that city from May 3

is arranging for a special exhibition in that city from May 3 to 13, 1913, of the combined paper and printing trades. There will be exhibits of bookmaking and bookbinding, the book trade, the placard and poster trade, office supplies, and stationery.

According to a report of the Austrian Consul-General in Berlin, this exhibition, to whose honorary committee the leading representatives of the German paper industry belong, is being arranged chiefly for the purpose of inducing the consumers to purchase their supplies from the retailers rather than from the wholesalers, the latter being strong competitors of the former trade in the stationery trade. in the stationery trade. Digitized by GOOG

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THIRTY-SIXTH ANNUAL CONVENTION OF THE AMERICAN PAPER & PULP ASS'N.

NEW YORK, FEB. 18,19 & 20, 1913

Detailed Report of the Proceedings

HE thirty-sixth annual meeting of the American Paper & Pulp Association was held in the Waldorf-Astoria Hotel on Tuesday, Wednesday and Thursday of last week. The first two days were devoted to division meetings, the Board Division being the first to assemble under the chairmanship of Charles R. White on Tuesday at 10 o'clock A. M. The Writing Paper Division, W. D. Judd, chairman, met the same day at 1.30 p. M., and so did the Cover Paper Division, C. A. Hubbard, secretary, later in the afternoon, at 4 o'clock.

Wednesday was a busy day for the remaining divisions, numbering eight, which met in different apartments of the hotel simultaneously. Thus at 10 o'clock a. m. the Wrapping Division, H. W. Stokes, chairman; the Tissue Division, E. R. Redhead, chairman; and the Chemical Pulp Division, Thomas Hunter, chairman, all met to transact business. The Book Division, under A. L. Pratt, vice-president, and the News and Ground Wood Division, H. J. Brown and J. G. Rosebush, vicepresidents, assembled at 2 o'clock P. M., the first-named in the East room and the latter in the Myrtle room. The Coated Board Division opened their meeting in Room 107 at 1 o'clock P. M., with B. C. Hill presiding. The afternoon meetings included those of the Coated Paper Division, under Martin Cantine, vice-president; and the Specialties Division, S. A. Upham, vice-president, which were scheduled for 4 P. M.

As president ex-officio of each division, President Hastings participated in the deliberations of all and assisted in the formulation of subjects for subsequent presentation to the general meeting on Thursday, when suitable action was taken by the association as a body. It was at this general meeting that the vice-presidents representing the different divisions made their reports, which were followed by general discussion. The annual reports of the association officers were also made at that time.

The important business of the convention was transacted at the general meeting, which was called to order by President Hastings in the Myrtle room of the Waldorf-Astoria, on Thursday, February 20, at 10 o'clock

A. M. After the selection of Judge Charles F. Moore, editor of PAPER, as temporary secretary, President Hastings proceeded to make his annual report, the text of which follows:

President's Address

By ARTHUR C. HASTINGS
President of the American Paper & Pulp Association

At this the thirty-sixth annual meeting of the American Paper and Pulp Association, of which I have been honored in holding the position of President continuously for over four years, this being my seventh annual report by reason of previously holding the office when the association was more of a social organization than at present, therefore, it makes it rather difficult to include anything in my report today that may be said to be absolutely brand new.

You will be glad to know that the membership of the association was never larger than at present; that while in 1908 we had a membership of 100, we have been growing until at the last annual meeting we reported 260 manufacturers as active members, and today we have increased our membership to 276, located in twenty-four states, and that while last year we were having reports sent us from 358 individual plants in the country, today we have 375 reporting, so it can safely be stated that we have reporting to us over 80 per cent of the total amount of paper manufactured in the United States.

It is unfortunate that many of the smaller concerns do not appreciate the work we are doing to the extent of reporting, or assisting financially in the support of an institution that is for their benefit, perhaps more so even, than for the larger concerns. It is a selfish position that they occupy, and any injury that is being done them may be said, in a general way, to be partly their own fault. A united industry, representing 100 per cent of a trade, must receive more attention at the hands of legislators, railroads, labor organizations, etc., than a divided industry, therefore every manufacturer should



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use his best endeavor to secure other members, and this can easily be done by personal solicitation.

The paper business as a whole is suffering from the persistent attacks of certain interests whose influence is potent at the seat of government. Our present condition is well described as "a government by the publishers for the publishers." No interest, large or small, apparently, has much standing before our legislature if it is opposed by those interests.

No man who cares to look into conditions as they exist in foreign nations, as compared with those here, can help but criticize our government in its attitude, not only in tariff matters, but in the passage of the so-called Reciprocity Act, Section 2, which, in effect, throws open our market for the surplus of any nation. While this claim of foreign nations has not as yet been accorded them, there is grave danger that eventually it will be.

You are all aware of the constantly increasing quan-



CLARENCE I. McNAIR
Vice-President of the American Paper & Pulp Association

tity of paper and pulp being imported into this country, and at a lower valuation than the American mills can produce paper or pulp, and you are aware of the constantly increasing cost to manufacture in the United States. I venture to assert that not one of you have heard of a reduction in the price of any publication to the people, or any general reduction in the price of advertising.

The desire of many publishers to effect disorganization in the ranks of the manufacturers leads to assertions that many times, to say the least, are not true. One of the surest ways to combat this combination is by your own association, where facts may be secured and information given out to members, which, by their truths, will answer the many unjust criticisms and attacks. Surely if it is lawful for the buyer to combine to purchase, it must be just as lawful for manufacturers to intelligently judge of market conditions through facts, and be guided by such information in their sales. I have always held that the disorganization which the publishers hope to accomplish in the ranks of the manufacturers of newspaper indirectly affects every other class of paper, because the forcing of some mills, through lack of profits in one grade, to try their hand at some other class of paper will result in a constant disorganization and overproduction.

There is no large manufacturing business that requires more personal constant attention than does ours, and where as much capital is required for the annual turnover, and where the return on the investment is so little.

The constantly increasing importation of the different grades of paper and pulp, and the probable further increase in these importations, due to the possible lowering of the tariff, should lead the American manufacturers to closely look into the matter of exporting their goods. The South American field, which, as an association, we have thoroughly investigated, we believe is a market where we may hope to dispose of a large quantity of our production as soon as the proper shipping and banking facilities are provided, and as an association we can be of great assistance to those manufacturers who desire to seriously consider an exporting business. Some of these South American states show almost as large an increased per capita consumption of paper as do some of the more educated countries, and as the South American people become educated, which is rapidly being accomplished, the use of our material will very largely increase, and they will probably always be a large importing country in paper, due to the lack of supply of any suitable raw material. Up to this time some of the older countries like England and Germany have, through facilities being constantly worked out for them by their government, secured the major part of this trade. Our government's position seems to be a little different; their attitude, apparently, seems to be the wishes of the publishers, which are that our markets shall be thrown open for every pound of paper from anywhere in the world, and that our doors be closed as far as possible to any exportation of our goods, thereby creating an ideal position for the buyer.

The association is in touch with associations of other countries. While these associations have not as good an organization as we have, still we exchange information that, we think, is mutually advantageous.

The interest in the association work is shown by the fact that during the year 1912 we had 1,408 visitors at our headquarters, many of whom were foreigners, and most of them manufacturers.

As you know we have taken up the question of a cost system, and I most seriously recommend the adoption of some uniform cost system that will lead to a comparison of costs, one mill with another, with a view of eliminating high comparative costs, and with the ultimate result of a more uniform market price. Also with a view of bringing forcibly to the minds of the manufacturers the fact that they are not, in many instances, securing a profit for their goods.

At the previous two meetings of the association I recommended an Arbitration Board, to be composed of a representative from the National Jobbers' Association, the United Typothetae of America, and possibly the National Paper Stock Dealers' Association, and ourselves to take up any questions or disagreements as to deliveries, etc., or as to possible changes in Trade Customs

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Paper Company and vice-president of the Bardeen Paper Company, November 24, 1912.

That it be further resolved that we likewise deplore the loss to the industry through the death of Hugh J. Chisholm, president of the Oxford Paper Company, which occurred July 8, 1912. Mr. Chisholm served the association as its president during the years 1898 and 1899.

TRADE CUSTOMS

Whereas, conditions may arise from time to time that require changes in our trade customs,

Be it Resolved, that such changes be submitted to a Committee of our association and a committee of the National Paper Trade Association before its final adoption

OCEAN CARRIERS

Resolved, the American Paper & Pulp Association petition the Congress of the United States for the passage of the Nelson bill, the petition to be substantially in the following form:

"To the Honorable Senate of the United States:

"The American Paper & Pulp Association, which is composed of firms and corporations engaged in the manufacture of pulp and paper in the United States, respectfully petitions for the prompt enactment of the Belson bill S-7208, amending the Harter act of 1893. Many of the members of this association have experienced at the hands of the ocean carriers engaged in foreign commerce the repudiation and denial of responsibility on the part of such carriers for losses and damages to cargo. Where there is no actual final repudiation, there is, to a great extent, a settled policy upon the part of the ocean carriers in quibbling over responsibility for damages and greatly delaying settlements of just claims. A law of the United States, which would clearly impose upon ocean carriers the duty of delivering freight at destination in the same good order as received by the ocean carrier at point of shipment is, in the opinion of your petitioner, urgently required in the interests of American commerce.

"Adopted by resolution of the American Paper & Pulp Association at its annual meeting held in New York, 1913."

THE CANADIAN RECIPROCITY TREATY

The American Paper & Pulp Association at its annual meeting ratifies the resolutions passed by the Empire State Forest Products Association at their seventh annual convention, held November 18, 1912, as follows:

"Resolved, That our association, composed of men of all shades of public opinion and engaged in the management and development of forest lands as well as in the various branches of manufacture requiring forest products, does hereby denounce the so called Canadian Reciprocity Treaty (otherwise called the McCall bill), and urges its immediate repeal. It is (1) class legislation pure and simple, and (2) it opens the American market to a product which, under existing conditions, can be produced more cheaply in Canada and elsewhere than in the United States, and it thereby singles out for assault an industry which needs protection from competition by the cheaper products and labor of foreign countries without resulting in any benefit to the American consumer."

FOREST CONSERVATION

We enthusiastically endorse the policy of preservation and conservation of the forests in the interest of all the people, and urge coöperation on the part of the Federal and State authorities.

We are in sympathy with such legislation as will

eliminate unjust taxation of forest lands, to encourage reforestration so as to insure a perpetual supply of forest products, and the protection of the headwaters of our rivers and streams.

IMPROVEMENT OF INTERNAL WATERWAYS

We approve of the policy adopted by the State of New York for the extensive improvements of her internal waterways, which is to provide adequate water routes between the Great Lakes and tidewater along which freight can be moved at a minimum of cost for transportation, and we pledge our support towards obtaining proper and adequate terminals for said waterways.

PREVENTION OF FOREST FIRES

Whereas, the experience of practical lumbermen prove conclusively that the prevention of forest fires will do more to conserve our forest wealth, both present and prospective, than any other one thing,

BE IT RESOLVED, that we favor the strengthening, extending and perfecting of the laws relative to the prevention of forest fires and the protection and patrol of our forests, and urge the coöperation of all organizations, both Federal and State, to the carrying out of this policy.

BE IT FURTHER RESOLVED, that we commend a system of efficient educational work of state colleges of forestry for the training of professional foresters and practical woodmen in the study of wood using industries in states, in cooperation with the National Forest Service.

Below, in order, will be found the texts of the reports submitted by the different divisions of the association:

The Writing Paper Business

By W. D. JUDD Vice-President of the Writing Paper Division

It seems but a few short months since the present representative of the Writing Paper Division appeared before this body and endeavored to add a few words of cheer and encouragement regarding the situation in the writing paper business. The time has passed quickly and we are now well launched in the new year, while 1912 is ancient history.

It was a remarkable year in many ways and one long to be remembered. One particularly bright spot was the smashing of the old-time tradition that presidential years necessarily mean poor business. With three candidates in the race, all trying to save the country from ultimate ruin, there was bound to be more or less excitement politically, but its effect on business was practically nil.

The year started off with its usual hesitancy, but by February was in full swing, and so continued right up to July, the half year being one of the best for several years. After the usual summer quiet we experienced a good fall trade, which slackened, however, the last of November, and the balance of the year was quiet. That the year as a whole was about an average one is shown by the statistical information furnished us by the general office of the American Paper & Pulp Association.

While the average daily production in 1911 of 522 tons has been increased to about 580 tons; the proportion of writing paper made, more than actually sold, is comparatively small, proving once more that the mills have adopted the wise policy of shutting down when short of orders rather than following the old and foolish method of cutting prices and trying to fill up the mill with unprofitable business. There was more or less disturbance early in the year over the question of labor

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and shorter hours, and considerable agitation of the three shift proposition, which finally resulted in its voluntary adoption by a number of the mills in the East.

It is still problematical how this scheme of shorter hours will work out, for while the idea of eight hours' work, eight hours' play, and eight hours' sleep sounds ideal, it has not proven so in many instances. "All work and no play" may be true, but "Too many cooks spoil the broth" is equally so, and I believe that my own experience along this line is shared by others who pride themselves upon the uniformity of their product. The responsibility is so divided that it means unusual effort on the part of those in charge to keep quality up to the required standard. This problem will undoubtedly work out its own salvation in time, but it has helped to make the year one of unusual anxiety and worry. For fear the gentlemen present may think that this thought comes solely from personal experience will say that it is the



H. W. STOKES Vice-President of the Wrapping Division

opinion shared in by a number of manufacturers with whom your representative has talked over the situation.

This change has added about 10 per cent to the working hours of manufacture, and, of course, should increase the production upon the same ratio. The normal capacity of the writing mills has therefore been greatly increased and the demand for our product must be more than simply fair or shutdowns will be much more frequent than has been the case during the last few years. Some manufacturers are very optimistic, however, and are apparently confident of the future, for mills have been enlarged in order to gain more product, and there are one or two mills now in the course of construction which will, of course, add to the supply. It was, of course, necessary after this radical change in working hours to make a general readjustment of wages throughout all departments in order to equalize matters, all of

which greatly increased the cost of production. To preserve the harmony of the situation prices of raw materials continued to advance and the manufacturer was therefore confronted with a serious problem. It remained for a few mills who had sufficient courage to make a general advance in the prices of their product, and following the law of self preservation, the advance became general. My only regret, and I think it is shared in by all members of our division, is that the advance was not great enough, for with the continually increasing cost of both rags and pulp we are really no better off than we were a year ago, when the margin of profit was anything but satisfactory. This holds good especially with reference to the cheaper grades of writing paper, where the additional price was very soon absorbed by the increased cost of manufacture.

A few words in closing about the work of our division. That our association is well worth while has been proven over and over again. We have had more meetings than usual the past year, and the spirit of hearty coöperation was never more pronounced than at present. While we are not always in unanimous accord with reference to the settling of some of the complex questions relating to our particular branch of the industry, there is a perfect frankness between members, and in practically every case what seemed like an unsurmountable difficulty has been straightened out to the satisfaction of all concerned. Our relations with the jobber are closer than ever before, and speaking for our division, am glad to state that in our dealings with the National Jobbers' Association we are working in the greatest harmony.

Wrapping Paper During 1912

By H. W. STOKES Vice-President of the Wrapping Division

The manufacturers of wrapping paper during 1912 enjoyed a good volume of business. The demand while not equal to the production during the early months of the year improved with the increase in other branches of business, which began in the early summer and continued till the end of the year.

According to the statistics of the association seventyone companies reporting to it produced in 1912, 526,252 tons, or 89 per cent of normal output. Shipments were 100 per cent of the output, which may be considered a satisfactory and healthy condition.

These figures compare with previous years in percentages as follows:

	Production	Shipments
1909	81	100
1910	84	99
1911		99

Prices during the year have been fairly well maintained. Starting at a lower level at the beginning of the year they became firmer as the demand increased, but are not yet at a point where they produce a fair margin of profit, except perhaps in the case of some mills which through the advantage of an especially favorable location have a lower cost of raw materials or conversion.

The cost of labor and all materials which enter into the manufacture of paper is advancing each year, yet paper brings no more, and often less, than it did three or four years ago. To overcome the increased cost of materials, the progressive mills are installing new and improved machinery to reduce the cost of conversion, and in this way have been able to keep their net cost of manufacture somewhat below the selling price. A time

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will come, however, when ingenuity can accomplish comparatively little, while there is no limit fixed to the advance in the cost of labor or materials.

Unless the manufacturer can get a corresponding advance in the price for his product, his horizon is not tinged with the glow of advancing prosperity, but with the gloom of fading twilight.

In order that the manufacturer may be in a position to quote prices intelligently, it is necessary that he know the actual cost of his product, in which must be included proper charges for depreciation and interest on his investment. It is evident that very few manufacturers have this information, and in consequence quote a price based on what his competitors are making, or arrived at by a rough system made up largely of guess work and not from any actual knowledge of the facts.

Those who have made a special study of cost-keeping are convinced that many mills are making grades which are not profitable, and that if a uniform system of accounting could be adopted, it would result in each mill



THOMAS HUNTER
Vice-President of Chemical Pulp Division

making only what was profitable, and eventually eliminate much unnecessary competition as well as standardizing certain grades which would cover all the requirements of the consumer.

With this object in view meetings were held in New York and Chicago last fall to which the accountants of the various mills were invited, and which were largely attended. A system of cost-keeping was outlined, which it was thought would answer the purpose, and is now being worked out in many of the mills with such modifications as may be necessary to suit each individual case.

It is intended to hold further meetings at which those who are working in this direction will give the results of their experience. Eventually it is believed all will be working on this basis and then, and not till then, will a better era begin for the paper manufacturer.

Some new mills were built during the year, as is always to be expected, and the demand from natural increase appeared to absorb the new output.

The Government has not kept a separate account of the importations of wrapping paper, so reliable figures are not obtainable. It is probable that the importations are increasing, and if the bars are let down still further, as seems probable, the effect will be serious to the American manufacturer. While this may mean more to the makers of kraft paper, it must of necessity react on the industry at large without regard to the grade of paper made or to the location of the mill.

Kraft paper is being made in this country in larger volume, and more mills are projected for its manufacture. The quality, while not equal to the foreign, is steadily improving. Just at present there are so many grades and prices of this paper, the consumer is to some extent being prejudiced against it. It would seem desirable for those making it to establish some standard, or at least a greater uniformity.

The tariff question is again directly before us, as you all know, but how serious its effect on the industry may be few apparently realize. The average person thinks of it once in a while and consoles himself with the thought that perhaps it won't find his mill, and by some act of Providence pass over it.

A more general interest on the part of the wrapping paper manufacturers is necessary, if only to strengthen the work which the association through its president and a few other active workers are trying to do for our benefit.

The Future of Chemical Pulp

By THOMAS HUNTER
Vice-President of Chemical Pulp Division

The Chemical Pulp Division is pleased to report that the future of this industry looks more promising than it has in the past ten years. There seems to be plenty of pulp to go around, but we are all getting better prices on the average than for any length of time since I have been in the business. The paper mills have enlarged and put in new machines, or new mills have been built about fast enough to take care of the increased foreign importations. As far as I know, there has been no new sulphite mills built in this country in several years. We hear of enlarged plants and new ones contemplated in Canada, but we feel very sure that no one will build in this country, for the prices of sulphite have not yet reached the point where a person could not buy a sulphite mill cheaper than he could build one. The question of wood is a very serious one for those who have to look to the open market for their supply. Where it takes from 15,000 to 25,000 cords of wood to supply your mill it is almost impossible to buy this quantity of spruce at a price that you can make it into unbleached pulp and make any profit.

We are greatly surprised at the country's ability to absorb all the unbleached pulp shipped in from foreign countries, the importations during the past few years being as follows:

1909 1910 1911 1912 162,757 202,061 212,906 277,202

showing an increase over 1909 of 114,445 tons, and an increase over 1911, the largest previous year. of 64,296 tons; and it would seem from these figures that the importations will continue to increase each year. Last year we reported that we felt sure the imports had reached their limit, but we now give it up and will make no more such predictions.

All mills as far as we are able to learn are running

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full, comparatively, and are selling their output. Since one of the large sulphite mills discontinued selling unbleached sulphite the home mills have been fairly busy. Thirty-six sulphite mills making unbleached sulphite are reported to have a capacity of 158,868 tons available for shipment, and shipped during the year 117,608 tons.

In reference to the bleached sulphite pulp, the demand has been good, and I understand they have all the business they want. The importations for the past few years are as follows:

1909 1910 1911 1912 61,904 76,846 86,422 77,144

showing a decrease in 1912 over 1911 of 9,278 tons.

In soda pulp the business has been about 95 per cent of normal.

Mechanically ground pulp has been plentiful owing to an abundance of water, and I understand the prices are now down some. The recent imports are as follows:

> 1909 1910 1911 1912 139,853 226,189 267,089 185,802

showing a falling off in importations of 81,287 tons.



BERTON C. HILL Vice-President of Coated Board Division

It will be observed that substantial increases have been made during 1910 and 1911 in the importations of mechanically ground pulp from both Norway and Sweden. These countries, in addition to Germany and Austria-Hungary, are proving to be potent and growing factors in the chemical pulp markets of the United States, as may be seen from the figures herewith.

Report on Coated Paper Industry

By MARTIN CANTINE Vice-President of the Coated Paper Division

This is not a swan song, but a few cold facts as they have come to my observation, and have made me sit up and take notice.

The coating industry in this country is not an old one, but for many years was done by a portion of the manufacturers in an easygoing way, with not too much thought as to what modern improvements and necessities might call forth. A few years back you could count the coating plants on the fingers of one hand, and it was not a hard task to get adequate returns upon the investment. To-day there are fifty-two coating plants.

The Coated Paper Division during the past year has had a hard struggle to keep their mills going, and very few, if any, have been able to work up to their capacity.

New mills and additions to the present ones are increasing the production nearly 20 per cent per annum. This rate of increase cannot continue under existing conditions without serious results.

The prices of nearly all raw materials are advancing. The offset process of printing has caused many printers and lithographers to install this type of press and substitute plain for coated papers. This manner of printing is still in its infancy, but rather a healthy baby.

The tariff now stares us in the face and, should reductions on coated papers be made, we will have added burdens to carry.

At the present time, profits in the coating line are small, and a large volume of business and, in many cases, long credits given. When figuring the percentage of gain as against the total sales, one can plainly see this class of goods is sold on a very low margin of profit.

It would be well for those thinking of entering this field of manufacture to do so with their eyes open. The coming year does not look encouraging, but still we hope to be able to greet you at your next annual meeting, even if we are in depleted circumstances.

The Outlook for Newsprint

By HERBERT J. BROWN Vice-President of the News Division

To the manufacturers of newsprint paper the most gratifying feature of the year 1912 is that during the entire year, waterpower conditions throughout the United States were unusually good. As a result, the importations of ground woodpulp for the year were 82,000 tons less than in 1911.

The news mills reporting to the association have produced during 1912 about 1,270,000 tons, or 95 per cent of their normal capacity. This is about 65,000 tons more than in 1911; shipments during the year were about 1,257,000 tons, leaving stock on hand on December 31 of approximately 40,000 tons as compared with 27,640 tons on December 31, 1911.

If this were all, the newsprint manufacturers might feel very well satisfied, but, unfortunately, there are other conditions which may well make him apprehensive of the future. The year 1912 gave a foretaste of what may be expected under the operation of the so called reciprocity act. The importations for the year were 68,000 tons against 59,000 tons for 1911, an increase of about 50 per cent. Of this large importation, 74 per cent came in free of duty. By the end of the year 1913, the capacity of Canadian mills will be further increased by some 150,000 tons, most of which will doubtless seek an outlet in this country. Our own increase for 1913 will be about 80,000 tons, making a new product of about 180,000 tons, against an estimated increase in consumption of 100,000 tons.

When we consider the probable effect on price of this great increase of production, and realize that our own Government will doubtless continue to encourage Canadian mills at the expense of the American, it is small wonder that many makers of news are casting about for other lines that will promise better for the future, or are considering the advisability of dismantling their mills and selling their power in the form of electricity.

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Tables Showing Rate of Hourly Production on Different Grades and Sizes of Paper Hourly Production with 118" Machine Operated at Different Speeds

COMPUTED BY JOHN H. WEIMER, VICKSBURG, MICH.

Part I

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	688.6	619.8	550.9	482	413.2	378.7	344.3	633.6	588.3	543	497.8	452.5	407.3	362	316	528	462	396	363	330	297	264	231	691.2	604.8	518	475.2	432	388.8	345.4	301.9	280.5	289.1	216	55
	751.2	672.6	601	524.4	450.7	413.2	375.6	691.2	641.8	592.4	543	493.7	444.3	394.9	345	576	504	432	396	360	324	288	252	754.1	659.8	565.2	518.4	471.2	424.2	376.8	329.4	306.	282.6	235.6	8
	813.8	732.5	651.1	569.7	488.3	447.6	406.9	748.8	695.3	641.8	588.3	534.8	481.3	427.8	374	624	546	468	429	390	351	312	273	817	769.8	610.2	561.6	510.4	459.5	408.2	356.8	331.5	305.1	255 2	65
	876.5	788.9	701.2	613.5	525.9	482	438.2	806.4	748.7	691.1	633.5	575.9	518.3	460.7	403	672	588	504	462	420	378	336	294	879.9	824.8	658.4	604.8	549.8	494.9	439	384.3	357	329.7	274.9	70
	939	845.2	751.3	657.3	563.4	516.5	469.5	86 42	802.2	740.5	678.8	617.1	555.4	493.	432	720	630	540	495	450	405	360	315	942.8	879.8	706.4	648	588.	530.3	471	411.8	382.5	353.2	294.5	76
	1001	901.6	801.3	701.2	601	550.9	500.8	921.6	855.7	789.8	769.3	658.2	392.4	526.	460	768	672	576	528	480	432	384	336	1005	934.8	753.6	691.2	628.2	565.9	502.4	439.2	\$ 08	376.8	314.1	80
	1064	957.9	851.4	745	638.6	585.3	532.1	979.2	909.2	839.2	814.6	699.4	629.4	559.5	489	816	714	612	561	510	459	408	357	1068	989.8	800.6	734.4	667.6	601.1	533.8	467.3	433.5	400.3	333.8	85
	1126	1014	901.5	788.8	676.1	619.8	563.4	1036	962.7	888.5	859.6	740.5	666.5	592.5	518	864	756	648	594	540	486	432	378	1131	1044	847.8	777.6	706.8	636.5	565.2	494.1	459	447.4	353.4	8
	1189	1070	953.6	832.6	713.7	654.2	594.7	1094	1016	937.9	859.8	781.7	703.5	625.3	547	912	798	684	627	570	513	456	399	1194	1099	894.8	820.8	746	671.9	596.6	521.5	484.5	471.	373	95
	1252	1127	1001	8756	751.3	688.6	626	1152	1069	987.3	905.1	822.8	740.5	658.2	576	960	840	684	660	600	540	480	420	1257	1154	942	864	785.4	707.3	628	549	510	471.	392.7	100
	1314	1183	1051	923	788.8	723.1	657.3	1200	1123	1036	950.3	863.9	777.5	691.1	604	1008	882	756	6 93	630	567	504	441	1320	1154	989	907.2	824.6	742.7	659.4	576.4	535.5	494.5	412.3	105
	1377	1239	1151	964.1	826.4	757.5	688.6	1267	1176	1086	9956.	905.1	814.5	72.1	633	1056	924	792	726	660	594	528	462	1383	1209	1036	950.4	28	778.1	690.8	603.9	561	518.1	432	110
	1440	1296	1151	1007	863.9	791.9	720	1324	1230	1135	1040	946.2	851.6	757	662	1104	966	828	759	690	621	552	483	1446	1264	1083	993.6	903.2	812.5	722.2	631.3	586.5	541.6	451.6	115
	1502	1352	1202	1051	901.5	826.4	751.3	1382	1283	1184	1086	987.4	888.6	789.9	691	1152	1008	864	792	720	648	576	50	1508	1319	1130	1036	942.4	847.9	753.6	658.8	612	565.2	471.2	120
	1565	1408	1252	1095	939.1	860.8	782.6	1440	1337	1234	1131	1028	925.7	822.8	720	1200	1050	90	825	750	675	8	525	1571	1374	1172	1079	981.8	918.7	785	686.2	647.5	588.7	490.9	125
	1627	1465	1302	1139	976.6	895.3	813.9	1497	1390	1283	1176	1069	962.7	855.7	748	1248	1092	936	858	780	702	624	546	1634	1429	1224	1122	1020	953.1	816.4	713.7	663	612.8	510.4	130
	1690	1521	1352	1183	1004	929.7	845.2	1555	1444	1322	1221	1110	999.7	888.6	777	1296	1134	972	891	810	729	648	567	1697	1484	1271	1165	1060	989.8	847.8	741.1	688.5	635.8	530.1	135
	1753	1577	1402	1227	1041	964.5	876.5	1612	1497	1382	1267	1151	1036	921.5	806	1344	1176	1008	924	840	756	672	588	1759	1539	1316	1209	1098	1025	878	768.6	714	659.3	549.8	146
	1815	1634	1452	1270	1079	998.6	907.8	1670	1551	1431	1312	1193	1073	957.5	835	1392	1218	1044	957	870	783	88	8	1820	1594	1365	1251	1138	1060	909.4	796.1	739.5	682.9	569.8	146
	1876	1690	1502	1374	1116	1033	939.1	1728	1604	1481	1357	1234	1110	987.4	864	1440	1260	1080	990	8	810	720	88	1885	1649	1412	1296	1176	1095	942	823.6	765	706.5	569.4	156
	1904	1746	1552	1358	1154	1067	970.4	1785	1658	1530	1402	1275	1147	1020	892	1488	1302	1116	1023	930	837	744	651	1947	1704	1460	1338	1217	1095	973.9	851.1	709.5	730.1	589	155
	2002	1803	1602	1402	1192	1101	1001	1843	1711	1579	1448	1316	1184	1053	921	1536	1344	1152	1056	960	864	768	672	2010	1759	1507	1882	1256	1131	1004	878.4	816	753.6	608.7	100
	2066	1859	1652	1446	1229	1136	1033	1900	1765	1629	1493	1357	1222	1086	950	1584	1386	1188	1089	990	891	792	693	2072	1814	1554	1424	1295	1166	1036	906.5	841.5	777.2	647.9	100
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Continued on page 90

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Tables Showing Rate of Hourly Production on Different Grades and Sizes of Paper

Hourly Production with 118" Machine Operated at Different Speeds COMPUTED BY JOHN H. WEIMER, VICKSBURG, MICH.

(Continued from page 88)

Part II

	Sizes and Weights 50 Sheets to Ream D. Cap D. Royal D. Folio																																
Speed		D. Cap 17 x 28 6 sheets											D Royal 24 x 38 4 sheets											D. Folio 22 x 34 4 sheets									
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8	617	355.5	493.9	432	370.2	308.5	277.7	246.8	216	485	454.7	424.3	394.1	363.7	333.4	300.1	272.8	242.5	212.1	440.5	406.5	2.7	338.8	804.9	271	372.1	220.2	203.2	169.4	8			
8	678.9	610.9	543.1	475.2	407.3	339.4	305.4	271.5	237.6	533.4	500.2	466.7	433.5	400.1	366.8	333.4	300.1	266.7	233.3	484.5	447.3	409.9	372.7	835.4	298.1	260.8	242.2	223.6	186.3	8			
8	740.5	666.5	592.5	518.4	444.3	370.2	333.2	296.2	259.2	583	545.6	509.1	472.9	436.5	400.1	363.7	327.4	291.5	254.5	528.5	487.9	447.2	406.5	365.9	325.2	284.6	264.2	243.9	203.2	8			
g	802.3	722	641.9	561.6	481.3	401.1	361	320.9	280.8	630.4	591.1	551.6	512.3	472.9	433.5	394.1	354.6	318.2	275.8	572.7	528.5	484.5	440.4	396.4	879.4	208.3	286.3	264.2	220.2	8			
70	200	777.5	691.1	604.8	518.3	432	388.7	345.5	302.4	679	636.6	594	551.7	509.2	466.8	424.4	381.9	339.5	297	616.7	609.9	521.7	474.3	426.9	406.5	332	308.3	284.6	232.1	70			
75	925.7	833.1	740.5	648	555.4	462.8	416.5	370.2	324	727.4	682.1	636.4	591.1	545.6	500.2	485	409.2	363.7	318.	660.7	650.5	559	508.2	457.4	433.6	355.7	330.3	304.9	254.1	75			
8	987.5	888.7	789.9	691.2	592.4	493.7	444.3	394.9	345.6	776	727.5	678.9	630	582	533.5	515.3	436.	388	339.4	704.7	691.1	596.3	542.1	487.9	450.7	379.4	330.3	325.2	271	8			
8	1049	944.2	839.3	734.4	629.4	324.5	472.1	419.6	367.2	824.4	773	721.3	669.	618.1	566.9	545.6	463.8	412.2	360.6	748.7	731.9	633.5	576	518.3	487.9	403.1	374.3	345.5	287.8	8			
8	1110	999.7	888.7	777.6	666.5	555.4	499.8	444.3	388.8	873	818.5	763.7	709.3	654.8	600.2	575.9	491.1	436.5	381.8	792.9	772.4	670.5	609.8	548.8	515	426.9	396.4	565.9	304.9	8			
8	1172	1055	938	820.8	703.5	586.2	527.6	469	410.4	921.4	863.9	806	748.7	691.	633.5	606.3	518.3	460.7	403	836.9	813.1	708.1	643.7	579.3	569.2	450.6	418.4	386 .2	321.8	95			
100	1234	1110	987.5	864	740.5	617.1	555.4	493.7	432	970	909.4	848.7	788.2	727.5	666.9	636.6	545.6	486	424.3	880.9	853.9	745.4	677.6	609.8	596.3	474.3	440.4	406.5	338.8	100			
105	1296	1166	1036	907.2	777.5	648	583.1	518.3	453.6	1019	954.9	891.1	827.6	763.9	700.2	636.6	572.9	509.3	445.5	925	894.5	782.6	711.5	640.3	569.2	498	462.4	426.9	355.7	105			
110	1357	1221	1086	950.4	814.6	678.8	610.9	543	475.2	1067	1000	933.5	867	800.	733.6	666.9	600.2	533.5	466.7	969.1	894.5	819.9	745.4	670.8	596.3	521.7	484.5	447.2	372.7	110			
115	1419	1277	1135	993.6	851.6	709.7	638.7	567.7	496.8	1115	1045	975.9	906.4	836.7	766.9	697.2	627.5	557.8	487.9	1013	935.1	857.2	779.2	701.3	623.4	545.5	506.5	467.5	389.6	115			
120	1481	1333	1184	1036	888.6	740.5	666.5	592.4	518.4	1164	1091	1018	945.8	873	800.3	727.5	654.8	582	509.1	1057	975.9	894.4	813.1	731.8	650.5	569.2	528.5	487.9	06.5	120			
125	1542	1388	1234	1079	925.7	771.4	694.2	617.1	540	1212	1136	1060	985.2	909.4	833.6	757.8	682.1	606.3	530.3	1101	1016	931.4	847	762.3	677.6	592.9	550.5	508.2	423.5	125			
130	1504	1444	1283	1122	962.7	802.3	722	641.8	561.6	1261	1182	1103	1024	945.8	867	788.2	709.3	630.5	551.6	1145	1057	989	880.9	792.8	704.7	616.6	572.6	528.5	440.4	130			
135	1666	1499	1333	1168	999.7	833.1	749.8	666.5	583.2	1309	1227	1145	1064	982.2 1018	900.3	818.5	736.6	654.8	572.8	1189	1097	1006	914.8	823.3	731.8	640.3	594.6	548.8	459.4	135			
140	1728	1555	1382	1209	1036	864	777.5	691.2	604.8	1358	1273	1188	1103		933.7	848.8	763.9	679	594	1233	1138	1043	948.7	859.8	758.9	664	616.6	569.2	474.3	146			
145	1789	1610	1431	1251	1073	894.8	805.3	715.8	626.4	1406	1318	1230	1142	1054	967	879.1	791.2	803.3	615.2	1277	1179	1080	982.5 1016	884.3	786	687.8	638.6	589.5	491.2	145			
150	1851	1666	1481	1296	1110	925.7	833.1	740.5	648	1455	1364	1272	1182	1091	1000	909.4	818.5	727.5	636.4	1321	1219	1118		914.8	813.1	711.5	660.7	609.8	508.2	150			
155	1913	1721	1330	1338	1147	956.5	860.9	765.2	669.6	1503	1409	1315	1221	1127	1033	939.7	845.8	751.8	657.6	1365	1260	1155	1050	945.3	840.2	735.2	682.7	630.2	525.1	155			
160	1974	1777	1579	1382	1184	987.4	888.6	789.9	691.2	1552	1455	1357	1261	1164	1067	970.1	873	776	678.9	1409	1301	1192	1084	975.8	867.3	758.9	704.7	650.5	542.1	8			
165	2036	1832	1639	1424	1221	1018	916.4	814.6	712.8	1600	1500	1400	1300	1200	1100	1000	900.3	800.3	700.1	1453	1341	1229	1118	1006	894.4	782.6	726.7	670.8	559	165			
170	2098	1888	1678	1468	1258	1049	944.2	839.3	734.4	1649	1546	1142	1339	1236	1133	1030	927.6	824.5	721.3	1497	1382	1267	1152	1036	921.5	806.3	748.7	691. <u>I</u>	579	170			



West Virginia Pulp & Paper Company

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Division Reports

Continued from page 86

Report of the Book Division

By ARTHUR L. PRATT Vice-President of the Book Division

We regret that the report made in behalf of the Book Division covering the year 1912, as in recent years past, must consist mainly in a recital of the difficulties with which we have had to contend.

It is strange, but nevertheless true, that an industry of such magnitude and commercial importance, instead of meeting with encouragement, is obliged to fight for its very existence and to contest every inch of the ground occupied, as if it were an illegitimate and indefensible enterprise.

The figures of the Thirteenth Census Report of the United States Government on paper and woodpulp industry show the Book Division to be the largest single factor in the paper trade, which fact is perhaps not realized by all of our people. In the year 1909, the last included in the census report referred to, the total value of pulp and paper productions was \$267,656,964, of which \$54,798,840 consisted of Book paper equal to slightly more than 20 per cent of the entire amount; no other single branch of the trade reaching such proportions.

Available figures for the year 1912 indicate a total production of Book papers of 838,000 tons, which represents 93 per cent of the available capacity of manufacturing plants now in existence. This means that for 7 per cent of the entire year the Book paper mills were wholly inactive—equivalent to a complete suspension of operations for almost four weeks, due largely to the strike at the Kalamazoo mills.

That there was no considerable increase in the production capacity within the year is perfectly plain, since the domestic producer was held in check by the uncertainty of political conditions, particularly with reference to the tariff iniquities already existing, as well as those threatened. Some extensions were made, it is true, in the interest of operations as well as by the conversion of certain newsprint machines into Book paper producers, but, on the other hand, something like a dozen Book mills diminished their capacity by turning their attention to the manufacture of other grades on account of the discouragements connected with the manufacture of Book papers.

Book paper producers need not be told that there has been an uninterrupted advance in the cost of practically everything entering into the manufacture of their paper, while at the same time conditions are such that they have not been able to add the additional expense of manufacture, or any considerable portion of it, to the selling price of their product.

We would suggest to the members of the Book Division that it is of the utmost importance that every possible effort should be made to secure the fairest consideration possible to our Book paper industry in the forthcoming revision of the tariff. It is hard to bring ourselves to the belief that there does not yet exist a sufficient American spirit and sense of justice among those who have our legislative matters in charge to at least prevent a further destruction of our interests. Every available channel should be utilized immediately through which our representatives in both houses of the Federal Congress may be advised of the true situation.

The damaging effect of Section 2 of the McCall bill, which has now been operative for about eighteen months, is manifest not only to everyone who has personal in-

terest in the paper industry, but likewise to all who desire that the American manufacturer should have an equal chance with his foreign competitor. Section 2, as it now stands, does not represent the policy of any political party. It has not an element of protection in it. On the contrary, it favors the Canadian producer. Nor does it conform to the doctrine of those who stand for a tariff revenue, for the admission of paper free of duty produces no revenue at all.

The growth of the paper industry in Canada, under the amazingly generous legislative policy of the United States, is such as to create most natural alarm on the part of our own producers. The importations from Canada in the latter months of the year 1912 have amounted to considerably more than double the importations earlier in the year. In February, for instance, 4,224 tons came in as against 10,679 tons for December. The importations for the year 1911 amounted to 54,485 tons, whereas for the year 1912 they totaled 84,630 tons, and for the last four months of the year paper was coming in at the rate of about 125,000 tons per year, and it is important to note that while only about 22 per cent of the 1911 importations came in free of duty, about 75 per cent of the 1912 importations paid no duty.

How generally the impression prevails in Canada that under existing conditions the American paper market can be practically supplied by the Canadian producer to the destruction of our domestic industry is evidenced by the active preparations being made for the construction of paper producing plants in the Dominion. In addition to the enlargement of plants then in existence, new concerns have been organized since the serious agitation concerning reciprocity began about three years ago, with an aggregate capitalization of more than \$150,000,000, to say nothing of twenty-five or thirty other corporations now in process of formation for the same purpose. And to show that our own people recognize the great advantage which has been given to Canada by our recent legislation, a great portion of the money required for the organization of these Canadian enterprises is being supplied by American capitalists.

It is true that the developments of Canadian industry up to this time have been principally in the direction of the manufacture of newsprint, nevertheless, the importation of that class of paper has indirectly affected our own market, and we may be sure that the Canadians will, in the near future, turn their attention directly to the production of Book paper as well. This they have not done in the past because on account of the simpler process of manufacture it required less time to develop the newsprint industry.

An editorial in the Pulp and Paper Magazine of Canada, dated February 15, calls attention to the fact that Canada has not thus far provided for the manufacture of Book paper to any considerable extent, and urges the immediate development of that field. It states that the construction of two Book paper mills are contemplated within the Province of Quebec forthwith, and ventures the prediction that others will immediately follow. The article also deplores the fact that within the last year certain Book paper consumers in Canada have been obliged to purchase small quantities of that grade of paper manufactured in the United States, and express the hope that such policy may not long continue; this in spite of the fact that Canada levies a duty on all of the paper we send into the Dominion, while under our liberal policy their product comes into the United States

We would again urge upon our manufacturers the necessity for a proper capitalisation of their producing

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companies. Many, we are inclined to believe, are doing themselves and the trade an injury by maintaining an inadequate capitalization. The percentage rate of dividend or revenue is often advertised to the public without any accompanying explanation that the capitalization upon which the dividend is declared does not represent the full amount of the capital invested. Thus the impression is created that certain companies are enjoying a large measure of prosperity and reaping large profits, when, as a matter of fact, the return on the actual capital is far from being liberal.

In this connection, we would also repeat what has been time and again stated that proper depreciation charges should be regularly made, not only for the purpose of preventing selfdeception, but to avoid the creation of false impressions among other people as cited above.

We congratulate the Book paper manufacturers on their general observance of our Trade Customs, which experience has proven to be greatly to the advantage of our customers as well as ourselves. In this connection, however, we would express our disapproval of the practice of entering into blanket contracts, which in no event can be in the interest of the producer.

On the whole, the year 1912 has afforded little encouragement to the Book paper producer, and the outlook for the immediate future is far from reassuring. It therefore behooves every man connected with the industry to do all in his power to accomplish the removal of the hindrances in our way, or, if that cannot be done, to at least see that the public is fully advised of the peril of our situation so that, if in the end we are to be sacrificed, the claim cannot be made that it was done ignorantly.

Customs and Costs on Coated Boards

By BERTON C. HILL Vice-President of the Coated Board Division

The year 1912 was the first year that the coated board manufacturers have been represented in this association. There are twenty coating mills making coated cardboard or coated boxboard, fourteen of which are members of the American Paper & Pulp Association, seven being located in the east and seven in the west. We have extended invitations to the remaining six mills to join, and we hope to receive their applications before our next meeting.

During the past year the Coated Board Division has been working on two questions, which we have considered to be of the greatest importance to the manufacturers of this product, viz., uniform trade customs and a uniform system of figuring costs. I do not know which of the two is the most important to every member of this division. We have been working on the trade customs for a longer period than the cost system, and the result so far has been very encouraging.

We have found the greatest opposition to Trade Customs among the eastern manufacturers, and I wish to state that I am firmly convinced that the universal use of trade customs will not only be of great benefit to the manufacturers, but to the paper jobbers and also the printers and ultimate consumers of paper and cardboard.

The practice of making cardboard one thickness and labeling it another should be abolished. All coated board manufacturers should adopt the same scale of points to the ply in blanks; translucents and all other grades of cardboard. The mills in the west are together in this respect, but about all the coated board mills in the east make different points to the ply in about every-

thing they manufacture. I have samples of catalogues of coated blanks and translucents from all the different mills, and very few of the eastern manufacturers are alike in the thickness of each ply. This is not only confusing to the cardboard jobber, but also to the mill representative when in competition with another mill's make.

We have a list of Trade Customs which are fair to the manufacturer and the jobber, and I urge every cardboard manufacturer present to consider adopting them.

The universal cost system has only lately been taken up by this division, and I cannot make any detailed report on this matter as yet, but I believe there is no other branch of the paper industry that shows a greater variation in the method of figuring the manufacturing cost.

A committee has been appointed to investigate cost systems and report at our next monthly meeting.

The printers and folding box manufacturers' associations have taken up the cost proposition, and the results in those associations have been extremely satisfactory.

In conclusion, I urge every coated board manufacturer to consider carefully the question of universal trade customs and also a uniform cost system.

Cutting of Prices on Tissue

By E. R. REDHEAD Vice-President of the Tissue Division

The conditions in the tissue business have been very unsatisfactory during the past year, in consequence of keen competition and the too eager desire of some manufacturers to sell their product with little or no reference to cost. In many cases, this has been done apparently because of ignorance as to the cost. In a few cases it would have been done had the cost been known. but there are few men of any business sense who will continue to sell without profit or at a loss if they have reliable data as to the cost of their product.

A few meetings of tissue manufacturers have been held during the year for consultations and particularly to consider methods of obtaining accurate figures as to cost. These meetings have been of much value to those who have attended them, and had those who were in particular need of these lessons been present much of the reckless cutting of prices of the past two years would have ceased.

The percentage of overproduction in the tissue line is comparatively small, and if the great majority of manufacturers will take the pains, as business sense and prudence would dictate, to know the cost of their product, there would soon be a steadying of the market and return to a reasonable profit upon their business.

The tissue manufacturers hope to see these results obtained during the present year. Otherwise, it is simply a question of the "survival of the fittest."

The complete story of the Banquet of the American Paper & Pulp Association, with full reports of the speechmaking, begins on page 98.

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Banquet of the A. P. & P. Association

STORY OF THE ANNUAL CELEBRATION WITH FULL REPORTS OF SPEECHES

Most Largely Attended and Successful Gathering in the History of the Organization

Radishes

HE thirty-sixth annual banquet of the American Paper & Pulp Association took place in the magnificent large ballroom of the Waldorf-Astoria on Thursday evening, February 20, and was an unqualified success. Covers were laid for 750 members and guests, which almost taxed the capacity of the banquet hall. At the speakers' table, presided over by the Hon. Arthur C. Hastings, president of the association, sat the guests of honor, including the Hon. Levi H. Bancroft, ex-attorney general of Wisconsin; the Rev. Dr. Nehemiah Boynton, of the Clinton Avenue Congregational Church, Brooklyn; W. N. Caldwell, the Hon. John A. Dix, ex-governor of the State of New York; George W. Knowlton, John Leslie, Clarence I. McNair, the Hon. Edwin A. Merritt, the Hon. Charles F. Moore, editor of PAPER; Col. Augustus G. Paine, George F. Perkins, G. F. Steele, and John Strange. The members and their guests, in addition to those named, were accommodated at eighty-seven round tables which filled the spacious hall and still permitted of easy intercourse in all directions, the arrangement being admirably devised for the comfort and convenience of the guests.

The tables were profusely decorated with cut flowers and sprays of green, and at each cover was laid a menu card and a printed list of guests, the latter containing a diagram of the seating arrangement, so that friends and acquaintances could be readily located. As each guest entered the hall he was the recipient of a small box, which, on being opened, was found to hold, enclosed in a chamois case, a dainty pair of opera glasses of the latest French make, a truly elegant and convenient article, which, doubtless, will long be cherished as a valuable souvenir of one of the most enjoyable banquets ever given under the auspices of the association.

The book of the menu (it consisted of eight pages and covers) was an artistic triumph and a delight to the eye, the color work on it being especially fine. Symbolic and prophetic of the future expansion of American commerce among the republics to the south of us it showed as a frontispiece a color process engraving bearing an artist's conception of the direction which trade will take when the Panama Canal is opened for the passage of cargo-bearing ships. In the upper part of the picture appeared a characteristic view of the skyline of lower New York, a line serrated with the peaks and spires of countless skyscrapers, and flowing away from the level surface of this ornamental headpiece, in vaguely suggestive splashes of blue and green, was indicated the contour of the southern states to Mexico and Central America. At about the upper third of the sketch the Isthmus of Panama could be recognized with its gutlike constriction of land, and depending from this in clearer outline was delineated the coastline and general topography of South America clear to Cape Horn. The lower foreground of the picture depicted a llanos framed with tall and stately palm trees and showing at the base on one side the figure of a South American planter astride a burro, and on the other a typical specimen of Spanish architecture, all in soft, warm color tones. At the extreme base in the centre of the foreground was stamped the now well known Indian head emblem of the association.

The ornamental figures on succeeding pages of the menu carried out the original scheme, the headpieces showing bits of South American scenery and architecture, and the tailpieces a native type, a ship of commerce and the rising sun. The menu was as follows:

MENU

Smith Island Oysters Westmoreland Soup

Olives Celery S Escalope of Bass, Pompadour Salted Almonds

CUCUMBER SALAD, FRENCH DRESSING Sweetbreads, Isabelle Style Breast of Turkey Stuffed, Deviled Sauce

MACEDOINE OF VEGETABLES IN CREAM Fancy Sherbet
Squab Guinea Hen Roasted in Casserole

ESCAROLE SALAD WITH SWEET PEPPERS
Fancy Ices Coffee A

A pollinaris Assorted Cakes

The sherbet was served in a miniature representation of a dryer, which formed an acceptable additional souvenir of a most enjoyable occasion.

Judge Moore Starts the Speechmaking

When the coffee was reached President Hastings got the attention of the assembled diners and announced that Judge Charles F. Moore, the newly elected secretary of the association, would act as toastmaster, and after this form of introduction gave up his seat to him.

Judge Moore immediately struck the familiar note of fun and good-humored irony, which he maintained to the close, in introducing the speakers who followed him. "He had not known," he said, "that the duties of the new office, to which he had been elected, 'carried with them the responsibility of acting as chauffeur for this wagon." Continuing, he said:

"Your president, in his very adroit and accomplished way, approached me a few minutes ago and said that he wanted me to talk first. I knew that that meant he wanted to get by my speech as quickly as possible, and, when he came a second time and said 'I am going to insist upon you acting as toastmaster,' I was certain that he did not want me to speak at all. But having been invited to speak. I am going to speak a little bit before you come to the real pleasure of the evening.

"It is with some difficulty I speak distinctly. I have a sore throat, and I mention that not because I want any sympathy, but because it may afford you some satisfaction to know while you sit and listen and suffer, it hurts me, too.



SCENE AT THE BANQUET OF THE AMERICAN PAPER & PULP ASSOCIATION, AT THE WALDORF ASTORIA, FEBRUARY 20, 1918

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"I am going to say just a word to you about current events, the trend of the times, or the signs of the times. Events follow one another with such quick succession these days that they tread upon each other's heels. Changes are coming to us with such rapidity that we do not have time to get used to anything. The truth is that when we are ill we almost dread to get well for fear we may have a relapse. There are not many current events which of themselves are sufficiently significant to be deserving of any particular attention, but they are significant to the extent that they indicate to us the trend of things, just as so much waste floating on the surface of the waters indicate to us the speed and direction of the current.

"Current events are significant and, when properly interpreted, they tell us where we are drifting, but we do not often have the chance to interpret them properly. In the first place, we do not always see things as they are, and secondly, we cannot see all things as a whole, and so must trust to the recital of other people. Now I have learned long since that there is not much dependence to be put in other people's account of events, so that if we can neither see nor hear correctly nor speak correctly, we are apt to misinterpret them. Of course, in this day busy men must depend for their recital of what is going on upon others, and particularly upon the daily press, but the trouble is that the attention of the world is fixed too much upon the extremes of life. We turn our eyes to the conspicuous figure that leads the procession, shifting occasionally to the careless straggler following in the distance, while we give little or no heed to the great, countless mass, under whose steady, ceaseless tread the earth is made to tremble. The result is that we get abnormal views of things. We must either outrun the multitude or else stumble and fall to be seen. Do right, and you must pay to get your name in print. Do wrong, and you must pay to keep it out.

"I have no arraignment to make of the press, but it is absolutely true that if one were to come from a distant planet among us, with no knowledge whatever of what we are except that gained by the perusal of the morning papers, he would be forced to the conclusion that we were a race of criminals, freaks and monstrosities. The man who in an unguarded moment goes astray gets a column. A man who does right gets no notice at all. The woman who makes a vulgar display of her great wealth, and lavishes her affections upon poodles, pugs and Pomeranians gets her picture on the front page of the colored supplement of the Sunday edition, while the thousands of good mothers and wives, and daughters and sisters, who are laboring to accomplish something in behalf of the world get scarcely a line. It is not surprising, therefore, that we get a miseonception of life and the things that surround us, and have little real knowledge of the current of events.

"Now, I am frank to say to you that I do not share the pessimistic view that some have of present-day conditions. I am not a pessimist, but coming from the South I am naturally a "possumist," which is an average between optimism and pessimism. I have great faith in our country and in our country's future.

"This country is too big and too great either to be particularly accelerated in its race toward destiny by legislative enactment, or to be for even a considerable period of time halted in its progress by the obstructions that some people would throw in its way.

"I do not believe the country is as sick as some people imagine. Take a glimpse, if you will, at the condition of the patient. Uncle Sam, lying calmly upon his back, with his head pillowed against the cold bosom of our Canadian neighbor, and his feet extending into the

sunny regions of the South, is in that condition which I have always been told is a sure sign of good health: Cool head and warm feet.

February 26, 1913

"It is true that at times the patient suffers more or less discomfort, and is not always presentable in his appearance; but the difficulty is not organic, and these local eruptions on his face which disfigure him are not necessarily fatal. It is the poison that stays in that kills, not the eruption that comes to the surface. When measles break out, the crisis is past. That is simply its way of getting out, and we would rather it would come out than stay in."

The toastmaster then said he would accept the situation and present some real speakers. He accordingly introduced as the first speaker the Hon. Levi H. Bancroft, ex-Attorney General of the State of Wisconsin.

Sensational Speech by Hon. Levi H. Bancroft

Mr. Bancroft's address consisted of a somewhat violent arraignment of political parties and a bitter denunciation of the men and newspapers responsible for the fearsome picture of conditions which he had conjured up. It was very lengthy, being read from manuscript, and as he neared the end of his oration the audience found relief by wildly cheering the mention of the names of those whom he had put in the pillory for castigation. The Rev. Dr. Nehemiah Boynton, who had come prepared to address the banqueters on Efficiency Engineers, abandoned his intention and made a brilliant and effective extemporaneous response to the effort of Mr. Bancroft, and succeeded in reassuring the assemblage regarding the moral and political state of the country.

Mr. Bancroft prefaced his set speech with a humorous comparison of himself and a recent recruit to the North Dakota legislature. The new legislator, a Norwegian, was discussing a bill to put a bridge across the Jim River, a stream more noteworthy for its length than its breadth, and, addressing the presiding officer. said:

"Master Speaker, I tank this vote against dis har bill is right; I don't tank dis har stream needs any bridge. I bet you I could yump across the dam thing in two yumps."

To which the presiding officer replied. "The gentleman is out of order."

"Master Speaker, you bet your life I bin out of order. If I ain't bin out of order like the devil I could yump across 'im in one yump."

Mr. Bancroft then proceeded to express himself on the present social unrest, which, he said. was worldwide in its extent and extremely revolutionary in its tendency. He said, in part:

"At no time since the later days of the seventeenth century, culminating with the French Revolution, the revolt of the English Colonies and the establishment of the American Republic, has any condition obtained at all comparable with the present-day situation.

all comparable with the present-day situation.

"Revolution is in the air. It has opened the Pandora's box of the nations in the Balkan States, and loosed the dogs of war in Europe and Asia. In far off China, the calm which has enfolded the Flowery Kingdom since the days of Confucius, has been rudely disturbed, and the sacred tombs of the Manchu kings are being profaned by the sacriligious hands of modern radicalism. . . .

"But the most impressive spectacle in world politics today is the revolution now transpiring in the United States.

"It is no longer a controverted question, but a fact admitted and fully recognized by the leaders of polit-

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ical sentiment in this country, that a highly organized attempt is being made to completely change our form of representative government.

"This movement has already attained a significance sufficient to have defined a line of cleavage in all political parties, and in the recent general election it was the proximate cause which relegated the political party responsible for the preservation of constitutional government as established by the founders of the American Republic to the third place in the popular approval of the people.

the people.

"Considered as an isolated fact, the success which has thus far attended the efforts of this revolutionary propaganda, represented by a comparatively insignificant minority, stands as one of the most astounding events

in our history. . .

"The ills from which our body politic is suffering today are identical with those which have wrought the wreck and ruin of republican government since the world began. Identical with those which hurled into oblivion 'the glory that was Greece and the grandeur that was Rome.'

"The Direct Primary, Governmental paternalism, the Initiative, the Referendum,—the Recall, these were the favorite quack nostrums of reform proposed by political demagogues centuries before the dawn of the Christian era.

"It was to insure posterity against the evils resulting from the adoption of these dangerous fallacies that our fathers pledged to the cause of human liberty 'their lives, their fortunes and their sacred honor.'

"The Constitution of the United States, admittedly the most remarkable and comprehensive document of human rights and liberty ever conceived in the brain of man, has more than fulfilled its every promise and expectation

"Within the comparatively brief period of our National life, it has advanced the people of its adoption from the position of feeble and insignificant colonists to that of the mightiest and most potential power of modern times. Assailed by an armed rebellion within the lifetime of the present generation, it inspired in its defense a patriotism as splendid and devoted as that which brought it into being.

"The epoch of the Civil War wrote upon the scroll of immortality, in the deathless annals of a people's heroism, beside the names of the inspired farmers of Monticello and Mt. Vernon, those of the 'rail splitter of the

Sagamon,' and the hero of Appomattox.

"With the faith of our fathers justified, our form of government emulated by humanity, our institutions inspiring all nations and all conditions on land and sea supreme; our people in the full enjoyment of the blessings of peace and prosperity, our flag greeted by all nations as the radiant emblem of a fuller liberty and a better justice than the world had ever known, like a bow of promise spanning the skies of two hemispheres.

"That was our situation ten years ago.

"About that time there began a movement in this country to regulate certain evil conditions which had become identified with the management of great corporations. These conditions were neither strange nor alarming. They were the natural and normal result of the evolution of vast industrial enterprise through many years of natural human competition. Selfishness and depravity are traits of human nature to be reckoned with under all conditions of society. Secure in the public confidence the several departments of the government remained fully adequate to deal with any possible condition which could arise in the administration of our internal affairs.

"But the voice of the demagogue was heard in the land. The opportunity for exploiting the situation did not escape the selfseeking politician. This movement for the regulation of "big business," at first dignified and thoughtful, became a political issue, and under the extreme and intemperate speech of partizanship soon swelled into a great wave of passionate public sentiment, which has swept the entire country from East to West. The newspaper lost no time or opportunity in increasing the public clamor and its own circulation. Cheap magazines multiplied and stirred the passion of the multitude with sensational scandals. The morbid appetite of the public, fattening by what it fed upon, demanded more. In order to retain their circulation and continue to reap their profits, the magazines and papers must find other victims. All business became crooked, all men in public life, or associated with great enterprise became bad.

"Congresses and legislatures became venal. Courts and judges were depicted as the bribed and perjured creatures of the "interests." In this saturnalia of scandal Diogenes might have sought in vain for one honest man. It is safe to say that since the invention of the printing press no nation has been so deluged with scandal, or its institutions, its courts, its citizenship, its public men, its enterprise, everything which relates to its governmental affairs, its industrial or commercial institutions, or the private life of its citizenship, so villainously libeled, as have the people of the United States during the past few years and at the present time.

"A single amendment to the Federal Criminal Code, placing the circulation of libelous matter through the United States mails on the same basis with that of obscene and indecent publications, would bankrupt every muckraking magazine and every yellow journal of sensationalism within a year from its adoption. . . .

"The policy which we have tolerated and abetted could produce but one result. The loss of prestige which our government has suffered at home has been more than duplicated abroad. The confidence which the government had fostered and encouraged, and the comity of relationship which existed between this nation and the Latin republics of Central and South America, a relationship essential for the preservation of the Monroe doctrine, and rendered more vital by the building of the Panama Canal, perished with the assassination of the last Republican President-William McKinley. Since the Spanish-American War our relations with foreign nations has been characterized by the same inconsiderate brutality as that which has characterized our politics at home. American diplomacy stands to-day about on a par with that of Turkey. If we have no confidence in our own institutions, why should we expect the confidence of other people?

Mr. Bancroft here drew a most depressing picture of the condition confronting the country in the threatened adoption of the Initiative, the Referendum and the Recall. He said there is in no state in the American Union today where there is apparent any organized and determined opposition to this frenzied and insidious assault upon Constitutional government, "except in those states south of Mason and Dixon's line, where once a splendid but misguided heroism upheld the defeated but never dishonored flag of the South, and where in the providence of God it may yet come to pass that the sons of those who gave the last full measure of devotion to a cause that was lost may redeem by their valor the pledge of loyal citizenship, when Constitutional Liberty, driven to their arms for protection, shall seek its final vindication on American soil. In this glorious

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retribution the South would be but exemplifying an ageold truth. Sweet are the lessons of adversity."

Following a severe denunciation of the publisher of a magazine in Wisconsin, whom he characterized as "one of the most consummate prevaricators in the United States," Mr. Bancroft asked:

"What is to be the fate of this nation if the business men fail of their duty? If through fear of his critics, or through fear of hurting business the business man becomes a servile fawning hypocrite, incapable of defending his own honor, but one hope remains, and that is the militant suffragette.

"The business men of this country are primarily responsible for present conditions. Their devotion to their own selfish interests aroused just criticism of "big business" and gave the demagogue his cue. Scarce 10 per cent of the business men have evidenced sufficient patriotism to exercise the duty of suffrage. They prefer to discharge their political obligations by handing out a check to some political manager. If they had managed their business as they managed their politics, there would have been no big business to complain of in America. Had they given to the promotion of the general welfare, a fraction of the effort made to promote their own welfare, the highest degree of governmental efficiency possible in a republic might have been realized. . . .

Mr. Bancroft blamed the political revolution in Oregon, California and Wisconsin on the complaisance and indifference of the people. The combined and aroused intelligence of the people was usually right. It is not the ignorance of the people which spreads calamity. It is their indifference, their lack of interest in the general welfare which is most to be feared.

A derogatory reference to Mr. Roosevelt by Mr. Bancroft started an uproarious burst of applause in favor of him, and it was some time before the speaker could resume. The reference came after an allusion to the spread of socialistic ideas under the leadership of political demagogues. The text of this reference, which was seized upon by the leader of the yellow press in New York as a peg on which to hang a grossly exaggerated and wholly misleading account of the episode, is as follows:

"Made valiant by their leaders' proclamation, that no crown of thorns shall be crushed upon their unwilling heads, nor yet their weary hopes be crucified upon a cross of gold, they march to the polls as the fanatical moslem to the court of the Prophet and exercise a freeman's right by electing to the office of his choice the leather-lunged exponent of an issue that can never die.

"Bryan, Roosevelt and La Follette, troublesome triplets of tribulation—Don Quixotes of Armageddon, the Mad Mullahs of progress."

The audience was not in full accord with the speaker on some points, and showed it in ways which a gathering of men will sometimes do. The cheering that followed the mention of former President Roosevelt's name was wild and prolonged. Judge Moore, who presided as toastmaster, found it necessary to admonish the assemblage to preserve order, and he did so most effectually.

On resuming Mr. Bancroft attempted to show how the situation could not be mended by "tariff tinkering, antitrust laws, commission government and the general multiplication of statutes in the expectation of making people honest, and patriotic and virtuous by law." These, he said, are but vain and temporary expedients, like the Kansas and Nebraska bills and the Missouri comprise, postponing the irrepressible conflict.

"The conditions of unrest are multiplying. The ig-

norant and the confiding are becoming impatient because of promises unfulfilled. A millennium of delay. Farmers and business men are becoming restless because of the ever increasing burden of taxation, coupled with continual threats of assault upon industry and enterprise in the various forms of legislation, taxation and litigation. It will not be an easy matter to restore public confidence.

"In the face of conditions which cannot be denied. the silly twaddle of shallow sentimentalists that the world is getting better every day is becoming positively nauseating. The world is getting richer every day. The world is becoming more scientific every day, but the world is losing spirituality. Everywhere we have commercialized everything. The dollar sign has become the nation's hallmark. Even the gospel of progress is preached by its beneficiaries at established rates of compensation. The platforms originating in the desire for the dissemination of religious sentiment and literary culture have degenerated into distributing centres for the circulation of slander and scandal, deliberately planned as a part of the political pronaganda for arousing the hatred and prejudice of the people against their own citizens and against their own institutions.'

As to the Moses who should lead the people out of the wilderness of factional strife into the promised land of constitutional liberty, Mr. Bancroft said he must needs be a man capable of doing a Moses' work, and it was hereabouts that he aroused the ire of Dr. Boynton, who responded to him later, for he declared that preachers should leave politics alone and preach the gospel. Still speaking of the Moses-like man who is the destined leader, Mr. Bancroft said:

"He will not be a school teacher nor a preacher. No country was ever saved by either. Both are entirely unfitted by their calling and environment for active participation in political affairs. It is manifestly impossible for a successful school teacher to specialize in any other line. As for preachers, they are divinely commanded to go forth and preach the gospel—not politics—and they are expressly admonished to "render unto Cæsar the things that are Cæsar's and unto God the things that are God's."

Speech of Ex-Governor Dix

In presenting the Hon. John A. Dix, former Governor of the State of New York, the toastmaster said he was known to all as a man who by his private life and public career had greatly endeared himself to those who knew him intimately, and had won the admiration of all who had observed him in his public life.

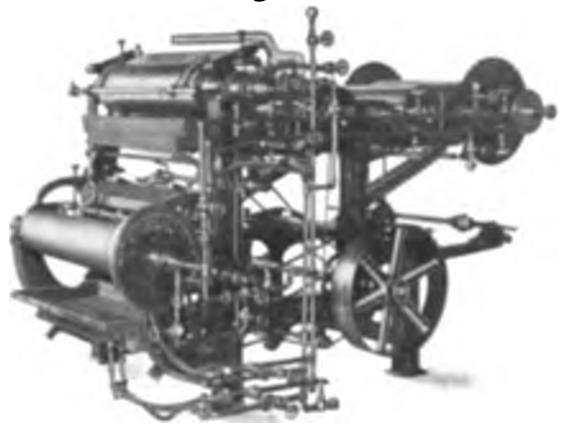
He began by expressing the satisfaction it afforded him to return to association with the papermaking industry after his recreation of the past two years. Speaking more particularly of the development and conservation of natural resources by the leaders in the industry, he said, in part:

"The industry of papermaking, which is sixth in importance in this country, has been affected by all the advances in price of raw material and the various elements that go to make paper, yet that product is sold cheaper today than at any time in its previous history. While this industry has been the means of making an article which has preserved the history of all nations and individuals, there has been no adequate history kept of the industry itself. It took four thousand years in the history of Egypt before the conservation of one of its resources was begun, that of impounding the waters of the Nile, yet the men to whom I am speaking are foremost in storing water to augment the flowage of the streams in this State and other States.

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A few years ago there was a difference of opinion about the manner of paying for this conservation of hydraulic energy, and I should like to relate a little incident that came under my notice once. When I was in the South I attended a prayer meeting and the preacher announced as his text, "Religion am Free." Later, in passing his hat for the contribution or collection, his neighbor, sitting in the front pew, said, "I do not propose to pay; you said 'Religion am free'." "Well," he said, "now, brudder, you can go down to the river and drink all the water you want—that is free; but if I regulate that stream and bring it to you, I expect you to pay for it."

That is exactly the condition of the manufacturers of paper who utilize waterpower to a greater extent



EX-GOVERNOR DIX

than any other industry. They are willing to pay for that improvement because they are glad of the opportunity to benefit those who may come after them, believing that they are only guardians of those resources.

The Rev. Dr. Boynton's Speech

In introducing Dr. Boynton, the toastmaster made an allusion to the reverend gentleman's appearance before the association at a previous banquet. "Some time ago we had him with us, and so greatly did he please us that we have exercised the modern doctrine of recall and have brought him back."

Dr. Boynton made a pleasing impression and spoke with great eloquence. The written record of what he said cannot do him justice, as it is impossible to reproduce the emphasis of phrase and gesture of which he made abundant use. It was evident from the start that he had been piqued by Mr. Bancroft's deprecation of the preacher in politics, for in opening his remarks he said:

"I have been greatly interested in all that has been said here tonight; I have learned something. One thing I have learned is that a minister must not talk about politics. If that is true, I have made some awful blunders in my thirty years of preaching. If I remember correctly, Cotton Mather, one of the early ministers in America, used once in a while to refer with more or less power and suasion to the subject of politics. If I remember correctly, Jonathan Edwards, besides writing a treatise on the Will, which today is a classic for whoever would study psychology, was accustomed to make

remarks once in a while concerning the political situation of his time with some picturesqueness and point. If I remember correctly, there was a man who lived in these parts once by the name of Henry Ward Beecher, who used to refer, now and then, not only in America but in England, to the great political questions and situations of the day, and had, perhaps, not less influence because he was a minister of the gospel.

"I have been trying to find where that scripture is to which our brother so eloquently referred. I remember scripture which speaks about the kingdom of God as coming one day in this world, and about its being the business of the minister to proclaim the kingdom of God in every department of it, and I believe that politics is just as much a part of the kingdom of God as education, or as commerce, and that a man cannot fulfil his calling as a minister of God whose relation to any department of human life is denied, or whose free and independent speech is forbidden. So I am going to be just as free in talking about politics tonight as my brother was; perhaps I shall be more free because he has a manuscript and I have not.

"Nothing is so perilous for a man in politics, I care not what his party, or what part of the country he represents, as to be limited to only one point of view. Perhaps there is no peril which is for the average American, politically speaking, than to be so tied up and consumed with one point of view that he is not able to see the other. Some kings, men of great authority and power, who have regarded themselves as the fountain of all wisdom have learned even from the court jester that there were areas of knowledge and points of view which they themselves had not appreciated or apprehended, and Edward Rowland Sill has described the experience in immortal verse, which I shall try to repeat for you:

THE FOOL'S PRAYER

The royal feast was done; the King Sought some new sport to banish care, And to his jester cried: "Sir Fool, Kneel now, and make for us a prayer!" The jester doffed his cap and bells. And stood the mocking court before; They could not see the bitter smile Behind the painted grin he wore. He bowed his head, and bent his knee Upon the monarch's silken stool: His pleading voice arose: "O Lord, Be merciful to me a fool! "No pity, Lord, could change the heart From red with wrong to white as wool; The rod must heal the sin; but, Lord, Be merciful to me, a fool! "'Tis not by guilt the onward sweep Of truth and right, O Lord, we stay; Tis by our follies that so long We hold the earth from heaven away. "These clumsy feet, still in the mire, Go crushing blossoms without end; These hard, well-meaning hands we thrust Among the heart-strings of a friend. "The ill-timed truth we might have kept-Who knows how sharp it pierced and stung? The word we had not sense to say Who knows how grandly it had rung? "Our faults no tenderness should ask, The chastening stripes must cleanse them all; But for our blunders-oh, in shame Before the eyes of heaven we fall. "Earth bears no balsam for mistakes; Men crown the knave, and scourge the tool That did his will; but Thou, O Lord, Be merciful to me, a fool!" The room was hushed; in silence rose The King, and sought his gardens cool, And walked apart, and murmured low.

"Be merciful to me, a fool!"

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"The king found out that there was another point of view with relation to things high and lofty which he had never seen, but with which the court jester was per-

fectly familiar.

"I am going to say to you in all confidence that the man who expects to be the undertaker and embalmer of Uncle Sam needs a mighty big capital, because he's got to wait a very long time before he will get a chance to do his job and collect his bill. I know that it is said that one country is sick; and political physicians and surgeons look very wise and sad; but sometimes even physicians are mistaken. True, we may have overeaten through luxury, and our digestion may be impaired, but we haven't got the heart disease yet; our liver and our lights are in pretty good condition, and these pimples which appear upon the face of our body politic are only such as are ordinarily found upon the countenance of adolescence.

"I use the term adolescence advisedly. This nation of ours is in its adolescence, and we have no more right to expect the perfection which belongs to nations which



THE REV. DR. NEHEMIAH BOYNTON

have had centuries upon centuries of life and opportunity than we have to expect a grandfather's virtues to be fully developed and perfected in a fifteen year old boy. Why, just think what has transpired in America since you and I were born. Let us go back to the Civil War. There were just thirty millions of people in America then, and we were practically a homogeneous people. All of our people practically were either the descendants of the splendid Cavaliers of the South, or of the Puritans of the North-to whom, by the way, I owe my own lineage. We were a homogeneous nation at the close of the Civil War, thirty millions strong. And then what happened? We began to increase our population, and people came from the north and from the east, from the south and from the west, and they came with all kinds of ideals, some of them like our own American ideals, and others with ideals which were very, very different. But they came, and they kept coming, until today in continental America we have 96,000,000 people beneath the Stars and Stripes, and, if you take into account our insular possessions, we have 106,000,000 people. Gentlemen, we have multiplied the population of the United States of America in the lifetime of such young people as we are here tonight more than three-fold. There never has been in the history of the world such an illustration of the migration of the human species as that. You cannot find anything like it in the history of Asia or of Africa. The old Continental world knows nothing about it. There is not another instance in history where a country in so short a space of time as has elapsed between the Civil War and the present day has witnessed such a phenomenon in the multiplication of her population.

"Does any sane man think that there can be such a multiplication of population as that without problems great and grave and strong and mighty coming along with them? Does anybody think that old hymn of our fathers that we are to be 'carried to the skies on flowery beds of ease, while others fight to win the prize and sail through bloody seas,' is to be an American political experience? Notice this: although we are the youngest nation, with this tremendous handicap, except we work it out—and we shall work it out, engaged in solving the most fascinating and the most delicate and the most intricate problem which has ever been given to the sons of men, nevertheless, we have made some very solid and

significant progress.

"Why, this is not the first time that we have been told that a cloud as big as a man's hand was going to spread over the heavens, and that our country was going to pieces. They told us that our country was going to pieces when we were young and weak and got in trouble with the mother country; you have only to read history to understand that many thinking folk believed that the end of our little republic was close at hand. But somehow or other we came out on the right side, and we did so because we put all that was in us into that struggle, and fought not for our own personal selves, but for the life of the fatherland; we won out and established the position of the independence of this republic so far as the mother country was concerned.

"Then there came another time when the dismemberment of our republic was proposed. You rememberespecially you older men—what was said, what was done, what blood was spilled, and you know the result; so that today the thing which is patent is that the North and the South have struck hands in an indissoluble friendship and loyalty, and we are one country, and there will never be a revolution of bayonets and of blood in America so long as the morning stars sing together.

We are one people forever!

"Now, in our adolescence we are up against another problem, and that is the problem whether we are fully masters of ourselves in the presence of luxury. We have had great business opportunities. I am not so sure that all business men have a freckle of the flesh upon their shining cheek as some people whom I sometimes

hear speak.

"I am the son of a business man myself, and I have a little respect for my honored and sainted father; my observation has been somewhat wide in the great cities of this country, and I have found more honest men than dishonest men. Don't you find it so in the paper and pulp business? I find more men that desire the best things rather than the worst. Once in a while I find a selfish man even in church. Once in a great while one strays in! But I find most of the men in the churches are a noble set of fellows.

"I found one rather stingy one who always sat in the front pew and never put anything in the contribution box but once. A missionary made a speech so moving



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that the old fellow got down into his jeans and put his offering on the plate. Next morning the deacon, who took the offering, met him on the train and said, 'Mr. Jones, how did you like the sermon?' 'Why,' he answered, 'That is what I call preaching, that is the real stuff; he is a man who has been there; his sermon was not the academic stuff of the kind the young minister gives us; that was real preaching.' 'Well,' said the deacon, 'if you liked it, why didn't you put more in the contribution box?' He replied, 'I made a large contribution.' The deacon retorted, 'You were the first one who put anything on the plate, and all you put on was a nickle.' 'Why,' he said, 'was that all?' It felt like a quarter.'

"We are up against two great propositions today. We are up against the proposition of the selfishness in the man who has taken to himself an unworthy privilege and advantage, and who proposes to hang on to it till the cows come home; and we are up against the influence of luxury upon that man's children. But because we are up against those two things, it does not



JOHN STRANGE of the Reception Cammittee

follow in the least that clouds and darkness are going to be around about us, and that this young, prophetic country, which has won out with all the odds against it, in these other illustrations which have been cited, is going to fail now. I grant you we must fight, but fail? Never!

A miserable two-by-four politician and statistician approached John Bright in the days of the civil war. John Bright was our friend. This little fellow took down the figures and put them before Bright's eyes and said, 'You see, Mr. Bright, from those figures it is proved, it is demonstrated beyond a possibility that the Union cannot endure.' Mr. Bright looked them all over, looked at them carefully; 'Well,' he said, 'I guess in spite of you she will muddle through.' Did we?

"The thing we are so confoundedly sure is going to happen does not always happen. We have heard tonight about the things that cast a shadow on our American life. I am still an optimist. An optimist is a man who is cross-eyed, and thanks God he is not bow-legged. An optimist sees his defects, but he sees also his strength and his privilege and his opportunity.

'I will tell you what the most hopeful thing in our American life today is: It is that while we have a yellow press we are waking up to the fact and are announcing it. If we have some plutocrats in our country that seem inclined to hold an inordinate grip on that which they have received, not altogether from the hand of God Almighty, still we know we have them, and they know we know it, and that is hopeful. If there are some thieves in our body politic, if some of our politics are not as pure as the spring water which the president of your association and I have been drinking all the eveing, the hopeful thing is that we know it, and that we are talking about it, and that we are cultivating in America a spirit of loyalty to our country, over and above our personal interests, for the sake of the country at large, which is going to do something about it. Yes, which is now doing something about it! We are cultivating just that kind of spirit which was so efficient in the early days of the Revolution and in these later days of the civil war. There is one thing that is true of an American today, and that is, he is not asleep-he is not snoring-he has his eyes on the situation!

"There is another thing that is true of American history. Any man across the sea who writes about America will tell you this is one of our characteristics: we are such a goodnatured class of folks that we will stand an evil for a good long time and we will laugh about it and joke with one another about it, and we will poke fun at it; but there comes a day—there comes a day! when that evil oversteps the appointed mark and lifts its impudent hydrahead among us, then America rises

and smites the thing to the death!

"That is true of America. That is a thing that is going to be true with relation to these measles and chickenpox and other things which are incident to our adolescence, with which we are afflicted today and which

some people think are cancers.

"I had intended to speak tonight about 'Efficiency Engineers,' but I could not resist touching on the topic which has been launched. I have been trying to just lodge in the heart of you men this one truth, that this America of ours is bigger than any one view of it. It is bigger than the beautifully optimistic and rosy view which is just at present entertained by our victorious Democratic friends. It is bigger than the militant Armageddon view which is entertained by our Progressive friends. It is bigger than the somewhat depressed view which is entertained by those who belong to my own party, which, if it is in recessional today, gentlemen, will be in processional again one of these days-when it gets new uniform and some new tactics and a new appropriation of those old principles which made it what it was, which the dear old party forgot about in the days of its supposed prosperity. No, men; No! No! The thing for us to do is not to waste our time in damning our own country by chattering feverishly and foolishly about it.

"You remember how it was with your boy, I mean the first one. You know when he got to be twelve or fourteen years old, he scared you most to death. He 'hooked' a nickle out of your pocket and you were sure he was going to State's prison the next day; and then he manifested some rather bad and possibly lascivious tendencies, which are perfectly natural to adolescence, and you were perfectly sure he was going to grow up to be a roué and you scolded him, and scolded him, and barked at him, and barked at him, and it didn't do any good. One day, sitting in your office, you said: 'I don't

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know that this is the way to help my little fellow. I don't know but he is better than I was myself when I was his age. You went home that night and you said: 'Tom, you have heard me talk about my fishing camp down in Maine, and you have never been old enough for me to take you along with me. We are going to start Monday morning; you are invited as my guest'; and there was a new light in his eyes. He had begun to think you were his enemy! A little look of recognition came, and during those two weeks you didn't say a word to Tom about that awful sin in 'swiping' that nickle. You didn't say a word to him about his personal habits, but you just tried to live like a goodnatured man; you tried to share his life with him. You tried to let him see what a fair man was like, and infuse into his boy's soul something of the love and strength there was in your own, and as you came home you found that Tom was his father's boy after all, and he was beginning to scratch and reach and fight for his own character and manhood. You saved Tom when you



FRANK L. MOORE
Vice-President of the Wrapping Division

quit calling him those names and began to sympathize

with him in the struggle.

"Oh, men! America today is only Tom. We are in the adolescent stage of national life. We have not come up into the strength of manhood yet! Thank God, we are not in the decrepitude age. We are just in the adolescent period. We have had all sorts of difficulties. We have had all sorts of troubles. We will have all sorts of trials, but men, men! men! if, instead of condemning our country and seeing from only one point of view her evils and her woes, we will just get in fellowship with her in a true and loyal sympathy; if we will make a man's sacrifice in our own ward, or in our own town for her weal; if we will speak in the rising inflection concerning her and not in the falling inflection, we will be surprised to see how many other people there are in America who feel that way, who talk that way and will find that the good and the begutiful and the

true on the whole is not in recessional, but is in processional in this land of the free and the home of the brave.

"If you want to quote scripture I will quote this: 'One shall chase a thousand and two shall put ten thousand to flight.' If you want to quote Scripture, I will say this: that a little leaven, leavens the whole lump, and you don't need a majority of the people in America in order to save America. You don't have to have a bushel of leaven with every bushel of meal. A little leaven leavens the whole lump. Then, oh my brother men! by speaking of our fatherland in the upward and not the downward inflection, by expecting that there will be troubles and difficulties and all that sort of thing which are to be met and mastered, 'whence comes temptation, but for a man to meet and master and so be pedestaled in triumph.' Whence comes luxury and the difficulties with relation to the tariff and all these other temptations to our American life? What are they for, but to be met and mastered by that true spirit which strengthens with every engagement and is confirmed in every victory.

"If we profess and cultivate the true American spirit

"If we profess and cultivate the true American spirit we will not be afraid of the future, we will even find ourselves singing those beautiful lines descriptive of our

country's tomorrow:

said:

Oh, beautiful for patriot dreams
That see beyond the years
Thine alabaster cities rise
Undimmed by human tears.

America, America,
God shed his grace on thee,
And crown thy good with brotherhood
From sea to shining sea.

"Pay off the undertaker; we shan't want him for ten thousand times ten thousand years."

Ex-Speaker Merritt's Homely Philosophy

The concluding speech of the evening was made by the Hon. Edwin A. Merritt, former Speaker of the Assembly of the State of New York, who was introduced by Judge Moore as "a man who has been nearly a papermaker as well as a lawmaker. Coming from many localities, St. Lawrence county, the City of Washington, and other foreign seaports, he says his relation to this organization is that of a contributing member, whatever that may be. In other respects he always contributes to our entertainment and enlightenment when he is heard. I take pleasure in introducing the Hon. E. A. Merritt, still junior."

Mr. Merritt spoke in a slow, drawling fashion that reminded one of Mark Twain, and though the hour was late and his speech a lengthy one he held the interested attention of everyone present. In quaint phraseology he drove home the point of many a homely observation and old-fashioned truth, and his remarks were frequently punctuated with laughter and applause. He

"Mr. Toastmaster, and gentlemen of the association: I have been extremely interested, as I know you all have been, in the speeches which have already been made. I don't know whether the last speaker is a pessimist or an optimist. I do know he has the last definition, because I got it by mail myself only yesterday. A pessimist has, I think, been best defined as a person who has lived a long time with an optimist. That has been my situation. I ought to be a pessimist if anybody is, because I have been living for a great many years with a whole bunch of optimists. It is very discouraging. It disturbs one's entire perspective.



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Boston Chicago Minneapolis Detroit St. Louis St. Paul "I had really thought out a serious, and I think an important, communication to make to this audience, but the line of conversation which has been indulged in has been so serious, has covered so nearly all the ground of possible argument or suggestion that I just think the best thing for me to do is to forget, as far as I can, the particular line of thought which I had in mind.

"I had even proposed, contrary to my custom, to reduce my thoughts to writing, but for me that is too serious a undertaking, as it involves an amount of labor

to which I am unalterably opposed.

"Do you know, those evils of the body politic are pretty bad? They sort of bear down on you. They make you think that there is really no hope anywhere; but I remember that this is a young country. My father's grandfather was at the battle of Bunker Hill and my father is a pretty hale man yet, as some of you gentlemen know. Besides, that is not so long ago in our family; it is only three generations, and we are getting along after a fashion—we are not getting along



A. H. NEVIUS Committee on Resolutions

so good as some of us think we might, but we are get-

ting along.

"I often wonder if the measure of success has changed since men begun to acquire property or not; whether it was ever the fact that money was out of fashion. I think it is true that the only measure of success that men recognize is the possession of property. I know a lot of men; I see some of them here that have got more than they need; they have enough so that, humanly speaking, they can enjoy and possess any pleasure, any comfort, and property or anything else that they may fancy. But I can understand—academically only—that they strive on, and undertake business enterprises and regard the money that they make as the measure of their success.

"It is a pleasure that everybody recognizes. How

often you hear people speak of the professions. You may not know it, but I am a member of one of the learned professions myself. The measure of a man's success at law is how much money he makes. You see, it is commercialized! That may not be true of the clergy; I don't know and I never will know, it is too late for me to consider that. But I do know that a friend of mine was remarking the other day that it was a sad affair that over in New Jersey—that is a foreign State, you know—the bar had become so commercialized that the old-fashioned lawyer had no particular standing. He might know a great deal about the law, but the question was what corporations he represented, how much did he get, and they couldn't understand why he followed the profession unless he was getting more than his clients in business. I see here tonight, knowing this agregation fairly well, and knowing some of it intimately—some laboring men, and I see their attorneys. I don't know whether the attorneys are getting more than the honest laboring man or not, but I think they are. We hear a good deal of discussion as to why a man should be in public life. Why does he submit himself to the annoyances and attacks that come in connection with that service.

"In the simple state of our development and cilivization when men were pretty much all on a level, when opportunities had not occurred by which one man developed greater financial strength than another, it was natural to regard a man's usefulness on the basis of his intellectual worth. He was a great lawyer, he was a great minister, he was a great public servant, but as life became more complicated, and as we reduced things more and more to a real basis, the question was: How much has he got; how much can he make? Let us accept that as a fair basis, and let us not be foolish about expecting something from human nature to which human nature does not respond.

"The toastmaster has sort of alluded to me in a general way that allows me a little bit of opportunity to speak from my own standpoint. I have been at these meetings for many years as a contributor. Occasionally I have occupied a position such as I reluctantly occupy tonight, as one of the waxworks along with the other gentlemen at this dais, but I do not really enjoy this phase of it, and I have been very lonesome. I have had in mind a story that Joe Cannon told over in Vermont of a man who lived in Burlington, who, in the fullness of time passed over the border and found himself in a very disagreeable position along with the forsaken of mankind, and he didn't like it, and he made a great deal of complaint. The presiding genius of those lower regions finally had his attention called to the man, and going forward to him, said: 'What's the matter with you? You don't seem to be reconciled.' 'No,' the man replied, 'I don't like it here.' 'What do you want? Do you want to go to Heaven?' 'No,' said the man, 'I don't think I do, but I would like to go back to Burlington.' Now, I find myself in the position that I would like to come back to New York. It is childish, I suppose, but it is entirely human.

"I suppose there are a lot of gentlemen's sons who would like me to tell what is going to be done to the tariff. They might assume that I might know. Now, I say to you confidentially, and not for the purpose of repetition, because we are all friends, that nobody knows what is going to be done with the tariff, not even the Ways and Means Committee of the House of Representatives, but the question is whether Underwood controls his committee or whether he doesn't, and nobody seems to know that, not even Underwood, so far as I can understand.

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"You know there are two different divisions of opinion in this country about business. One believes that the welfare of the community, including all of the people, is involved in the success of business. The other believes that the success of the business is not important so long as things are done in the proper way, and they know what the proper way is. Now, I am reminded of something that happened in St. Lawrence county a great many years ago. A friend of mine, a man who has passed away within a year, and therefore the story may be told, had a somewhat mixed family; that is, he had married a couple of times. The son of his first marriage was raised on a bottle. His stepmother was a much more husky proposition than his own mother was, and her children were not raised that way. One day his father took the boy, when he was about seven or eight years of age, up to the town of Colton, where he went on some business, and he left the boy in a drug store so that he wouldn't go out and fall in the river while he was attending to his business. The lad wan-



JOHN A. KIMBERLEY Neenah, Wis-

dered around the drug store and in a show case he saw some nursing bottles, and he asked the clerk what they cost. The clerk said 15 cents. When his father came in the boy said, 'Father, give me fifteen cents.' 'Why, Arthur, what do you want fifteen cents for?' 'I want to buy my little sister a nursing bottle,' said the boy. 'Arthur,' said his father, 'don't you think that little sister gets enough to eat?' 'Well,' said the boy, 'maybe she does, but I don't think she gets it in a very nice way.'

Now, these people that are distressed about the tariff being the mother of trusts and various things of that sort must have behind their protest an idea that if the economic policy of the government had been conducted in a different method somebody else than the people that are now successful would have been the ones who would have possessed the property—the busi-

ness advantage—the success which goes with being in with the things that are the most profitable. And so they don't like the way it has been done, and they are going to try to see if they cannot reverse the system which has existed. . . .

"What is to be done for our industry? I think I had better change the question and say, 'What is to be done to our industry, or what is to be done to everybody else's industry?' Nobody yet knows.

"We need not expect any better treatment than we have already received. Delegations won't change that, and argument won't change that. You will get nothing more than you have got; the chances are you will get less, and you can make all the argument you want, and you will be answered with an argument. You can ask for bread and you will get an argument. Fairness of treatment of an industry like ours might be met by treating our business as other business is treated in the matter of schedules; or it might be met by a reduction of rates on things that we use. I don't think that has ever been proposed or suggested. . . .

"The argument so far has been as to what was fair to our industry. We are able to ascertain what is fair as to the elements that enter into it. But I have alluded to the income tax, and the corporation tax, and I want to say to you, gentlemen, that this can be extended to secure, for the national Government, a great many millions of income. It takes some time to accustom our people to the income tax. The English are accustomed to it, but they have been four hundred or five hundred years in getting familiarized with it, so that they accept it, and seem to be pleased with it. At any rate, they adhere to it as a part of their fiscal system. We will get used to it in this country, because sufficient States have approved of it to make it the law of the land; and I would suggest, respectfully, that our people, who are representing us before committees, take up that phase of the subject as the only way in which we will ever get justice in the tariff legislation which is to come in the next few years. . .

"I heard today at the business meeting of this association some very interesting talk as to an accounting system to develop the real cost of production. It interested me because I have been somewhat interested in the Public Service Law of this State, which has been much found fault with. One thing it has done for the public service corporations which they cannot estimate the value of—it has taught them to keep such an account of their business that they know what it costs, and they never knew that before. They did not like the idea of being compelled to make reports. They said it was an unjust interference with their affairs; they said all sorts of things, but if they were intelligent, they found out that it taught them more about their own affairs than they ever knew before, and they ought to be extremely grateful for it. Now, I do not suppose this would apply to the paper business. I am a contributor to this establishment, therefore, I can say that; but I am interested in a way in some Public Service matters, and the Public Service operators of the State of New York, following the Public Service law, have changed their point of view. I do not think it would necessarily apply to our business, but it applies to the Public Service business; that the proposal now is not to get as much as you can for as little as you can, but to ask as little as you can for as much as you can get. This is the new doctrine in the Public Service business, and it is the only safety and the only protection of a public service corporation.

"Some of you wise men can tell me probably how much a corporation, not, a public service corporation,

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owes to the public which gives them certain valuable rights, the right of perpetual existence, if you please, the right of limited liability, if you please, and various other things which a practising lawyer like my friend Kellogg could recite if he were on his feet—and he is not now, and I am glad of it. But what do the ordinary private so called corporations owe the public? It is a question that is going to be discussed. It is at the bottom of this question of unrest.

"A lot of people think, with some justice, perhaps, that business men and corporations, private, so called, do not treat the public just as fairly as they ought. It is a pretty difficult thing to go into, but it is one of the things that is on the carpet. Just how the obligation will be defined, and to what extent it may go, neither you nor I can tell, but artificial creatures have got to render an account for their existence which private persons do not have to render yet, and private persons do



JAMES T. MIX Salesmanager of the Lake Superior Paper Co.

business, if you please, by reason of the existence of the Courts.

"Why does any gentleman in business trust a customer? Because he knows if he is good he can collect his pay, and there are courts and sheriffs, and jails and processes by which he can get his compensation back. The public gives him these. What does he owe the public? I don't know. I won't attempt to answer it, but I want to say to you that you don't want to forget it, and you want to be thoughtful.

"And with reference to the situation that exists today in this country (looking at his watch)—it is three minutes to twelve—put your house in order, put your house in order, put your house in order. Ask your country bank—I lived in the country—what they are doing? Well, they have an obligation to their directors and stockholders to make 20 per cent on their business in dividends and surplus and undivided profits. That has to be attended to.

"I don't know just how far intelligent operation of business goes. I never believed it was any use to me to have a customer who did not make any money, but some people think it is, and it is pretty conventional to take all there is that is in sight—to measure the necessities of the customer by your own power to make him settle. Well, that is all right up to a point, and beyond that it is not good business. You have to think about these things. I have it from my standpoint. I think it is a wise suggestion. I am making it in good faith.

"Let us agree to be intelligent. That is really the most important thing there is in the world. Sentiment plays out after a while. These things come and go. Progressiveness has its day, has its effect; it means something. Something else comes along and takes the place of it. Times and custom change; and I think one of the wisest things that was ever said was that which is found in the Book of Ecclesiastes, which I refer to with all due modesty:

"'I returned, and saw under the sun, that the race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favor to men of skill; but time and chance happeneth to them all.'

"Unless you are intelligent it will happen to you."
This concluded the post-prandial exercises, and President Hastings, who had resumed the chair, declared the thirty-sixth annual meeting adjourned sine die.

Committees in Charge

The committee having in charge the arrangements for the banquet and the management of the Waldorf-Astoria were the recipients of many encomiums on the success of the banquet and the efficient manner in which they discharged their exacting duties. The committee was composed of the following members: Frank J. Sensenbrenner, chairman; C. A. Babcock, George H. Mead, Frank H. Milham, Alvah Miller, H. L. Paddock, W. N. Munroe, G. F. Russell, Dr. L. A. Saxer, Fred N. Stevens, A. G. Paine, Jr., C. I. McNair and Alfred Leeds.

The reception committee was headed by ex-Governor John A. Dix, who had the following members as aides:

Pahcock, Bruce
Beckett, Thomas
Blandy, I. C.
Bliss, Edgar S.
Bloch, Louis
Bowker, N. J.
Carter, Robert D.
Cass, Charles A.
Chauncey, G. G.
Clapp, Eugene H.
Comfort, George O.
Cowles, J. A. B.
Crane, W. M., Jr.
Daniels, A. B.
Delano, Clayton H.
Delbridge, J. H.
Draper, E. B.
Edmonds, W. L.
Everard, H. H.
Esleeck, A. W.
Fairbanks, Crawford
Fannon, W. A.
Gilbert, Frank
Gilbert, Frank
Gilbert, Frank
Gilbert, W. N.
Gilkey, J. W.
Goodfellow, Joseph
Greene, Geo. E.
Harlan, D. E.
Harrington, H. L.
Hartley, M. T.
Haviland, John G.

Hobson, Arthur L.
Hodge, F. M.
Howarth, Wm.
Hubbard, J. L.
Hugo, F. M.
Johnson, Wm. Pierce
Kimberly, J. A.
Kingsbury, R. V.
Lukek, John G.
Marcuse, M. E.
Newton, J. H.
Ostrander, Geo. N.
Quirk, D. L., Jr.
Remington, C. R.
Reesse, D. E.
Rogers, James
Shaffer, Wm. R.
Smith, A. R.
Springer, C. C.
Strange, John
Sullivan, George
Sunderland, W. W.
Sweet, T. C.
Terp, Iver J.
Thomson, Peter G., Jr.
Waldorf, M. W.
Wallace, George R.
Warren, Fiske
Webster, J. Fred
Digit Wertheimer, M. A.
Weston, Charles S.

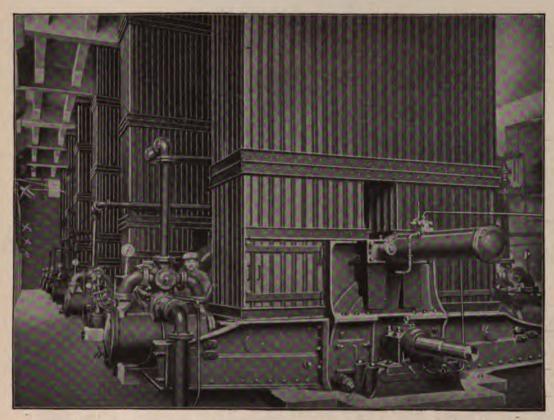
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Weston, Franklin White, Fred S. Whiting, Geo. A.

Wilder, F. P. Wing, C. B., Col.

Members and Guests in Attendance

The Committee on Banquet Arrangements, consisting of Hugh J. Chisholm, chairman; D. M. Anderson, David L. Luke, D. W. Bergstrom and H. A. Moses, gave out the following list of members and guests in attendance:

Acer, J. H. A. Adams, A. A. Adams, E. M. Addoms, Chas. Addoms, Everett. Alexander, A. Alfred, F. Allen, Arthur. Anderson, Johannes. Andrews, Geo. W.

Bache-Wiig, C.
Bache, W. K.
Baker, C. W.
Bancroft, Levi H., Hon. Bancroft, Levi H., F Bankherd, A. J. Bardeen, Norman. Barnes, J. Sanford. Barnes, L. E. Barratt, Edgar G. Barrett, C. V. Barrett, Nicholas J. Barry, J. D. Bartlett, N. E. Bassett, Chas. F. Bassett, S. H. Bath, W. J. Bauman, Oliver. Beaston, Richard. Becker, Caspar. Becker, Geo. W. Becraft, W. E. Bedford, Thos. P. Beers, Chas. W. Beers, Chas. W. Behr, Herman. Behr, Robert. Bell, Chas. W. Bell, Geo. Bell, Geo.
Benjamin, S. R.
Bertschy, Ray D.
Bickford, L. M.
Bishop, F. S.
Bittner, L.
Blackman, A. W. Bliss, Edgar S. Bloch, Louis. Blye, J. N.

Cadmus, H. I.. Caldwell, H. J. Caldwell, H. J.
Calder, Louis
Caldwell, W. N.
Cameron, Gordon
Campbell, R. G.
Canfield, James A.
Cantine, Martin. Carpenter, Herbert F. Carpenter, J. A. Carson, Cyrus. Carter, J. R. Carter, P. S. Carter, Robert D. Carter, Robert D., Jr. Carter, W. L. Cass, C. A. Cass, C. A.
Castle, W. A.
Chahoon, Jonah.
Chalice, Geo. E.
Chapin, W. N.
Chauncey, G. G.
Chisholm, Hugh J.
Claffin, W. H.
Clark, B. R. Clough, C. A. Cobb, Geo. H., Senator.

Anson, F. H. Archibald, A. J. Archibald, E. P. Argy, M. J.
Armstrong, F. S.
Armstrong, S. R.
Armstrong, W. A.
Augsbury, F. A.
Ayer, F. R.

В Bockius, M. R. Bond, B. F. Bookhus, M. R.
Bond, B. F.
Booth, Benjamin O.
Bort, B. C.
Bothwell, J. W.
Bowers, O. H.
Boyce, Robert R.
Boyer, F. M.
Boynton, Nehemiah, Rev.
Brack, G. S.
Brannon, Daniel.
Brannoon, John.
Brashear, Peter C.
Breck, H. A.
Bretzner, Ralph.
Brewer, C. A.
Brewster, James H., Jr.
Briggs, J. Albert.
Bright, A. M.
Bruge, Alfred.
Bryan, C. M.
Bryant, Emmons. Bryant, Emmons. Buchanan, Robert. Buck, R. J. Buck, R. J.
Buckley, L. H.
Bulkley, Jonathan.
Buller, Hon. N. R.
Bullis, E. G.
Burbank, A. N.
Burch, L. R.
Burn, Henry.
Bush, Chas. E.
Bush, E. H.
Butterworth, C. M. Butterworth, C. M. Butts, E. P.

Coffin, Arthur D.
Coffin, J. D.
Cohen, A. H.
Coleman, E. S.
Collins, C. W.
Collins, Grellet.
Collins, Henry H., Jr.
Collins, Issac. Collins, Isaac. Collins, N. J. Comstoch, A. S. Condit, H. L. Cone, R. L. Conklin, H. H. Conkey, H. M. Cook, J. C. Coolidge, G. P. Cortis, C. E. Cortis, C. E.
Corwin, J. W.
Cowles, Justus A. B.
Cowles, Charles P.
Cowles, Edward B. Cox, Edward W. Coye, C. H. Crafts, Geo. E. Crane, F. G. Crane, W. M., Jr. Crane, Z. Marshall.

Crim, John W. H. Crocker, C. A. Croxton, W. N. Crump, W. R.

Davis, John A.
Davis, W. L.
Dawe, A. L.
Day, W. O.
Dear, W. M.
Dearden, C. W.
De Coster, J. C.
Deards F. B. Dench, E. B.
Derby, David M.
Dewey, Col. W. S.
Dickhaut, Henry. Dickinson, B. C. Diem, Albert. Dillingham, Shepard.

Edge, Jacob. Edge, Jacob.
Edwards, Marcy.
Eibel, William, and guest.
Ellert, F. E.
Ellerson, H. W.
Ellis, Frank Taylor.
Ellsworth, E. W. Elsas, Herman, and guests. Elverson, James, Jr.

Farrell, F. W. Farwell, Porter. Farwell, Ray E. Faunce, Alton. Faunce, Atton.
Ferguson, H.
Field, C. R.
Findley, J. H.
Fishwick, A. B.
Flint, M. S., and guest.
Floyd, J. L.
Foley, M. J.

Gardner, E. T. Gardner, N. L. R. Gascoigne, P. V. Gilbert, F. Gilbert, Paul. Gilkey, J. W. Gillette, W. C. Gilman, Fred. Gilman, I. Gintzler, Morris. Glasson, Wm. Godwin, Joseph. Gold, J.

Haffelfinger, E. R. Hall, Arthur C. Halley, James M. Hamill, Jno. L. Hamlin, Condé. Hannoch, Louis. Harding, W. C. Hardon, Kenneth. Harlan, A. H. Harman, H. E. Harper, R. O. Harrington, Henry L., and Harrington, Henry L., guest.
Harrington, T. W.
Harris, R. C.
Hart, Walter T.
Hastings, Arthur C., Jr.
Hastings, Fred E.
Hastings, O. B., 2d.
Hayden, W. S.
Hayes, J. Arthur.
Hayward, L. F. Hayward, L. F. Heath, W. L. Heubach, Gustav. Higgins, H. S. Hill, A. H.

Curtis, Allen. Curtis, Harry L. Curtis, Warren, Jr. Curtis, W. B.

Daniels, Arthur B., and guests.Dillon, William B.
Dau, C. W.
Davis, John A.
Davis, W. L.
Davis, W. L.
Davis, W. L.
Davis, W. L.
Dix, Hon. John A. Dodd, Chas. F. Dodge, C. H. Dodge, Philip T. Donald, James. Donnelly, Saml. B. Doremus, D. H. Doubleday, Geo. M. Dunn, James. Duncan, C. E. Duval, Howard G. Drury, David M.

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Progress of the Paper Industry



ONSIDERING the progress made during a recent period by the papermaking industry—and few manufacturers have been quicker to respond when the word has been "forward" than the paper manufacturer—it is interesting to recall the fact that within the memory of many still active papermakers, rags were the only recognized raw

material from which paper was produced. The subject is treated most interestingly in a historical and reminiscent way in recent issues of the Holzstoff Zeitung,

of Dresden, Germany.

Long before wood fiber was recognized as an available material for papermaking, the whole world was laid under contribution to furnish rags for the papermills of Europe alone. From poverty stricken quarters in the great cities all over the world, from the plague spots in the Orient, from anywhere, rags, in endless quantity and variety were brought to furnish material for the paper on which our forefathers wrote and printed, but the aggregate receipts of rags of those days, would hardly furnish raw material for a single paper mill of magnitude in our times, while the entire paper output, in the days of the old-time rag product, would hardly meet the requirements of a single twentieth century daily newspaper.

It was modern enlightenment and intellectual progress that called the great papermaking industry of our times into existence and gave to it its present vast importance. As education became more general and more advanced, the people took increased interest in science, art and literature, the demand for the records of progress in these fields and for the literature of these subjects increased; also, with the growing desire for a better knowledge of the world's doings, and a demand for information as to events, political, commercial, industrial and social at home, came the need for a better and larger daily paper, and by reason of the resultant competition among publishers, these publications have in many instances reached exaggerated proportions; trade and technical publications also claimed immense quantities of superior printing paper, so that the demands on the available supply of paper grew until augmented resources of raw material became imperative.

From our knowledge of what has been accomplished by the ancients in the extraction of fibrous substance from vegetable material, and of what the people in the far East were and are still accomplishing in the same field, we came, by progressive steps and costly experiment to our present knowledge of the availability of certain woody fibers, first as a surrogate for rag pulp and finally as a substitute for it.

Wight, R. A.

With the widening of the field in this direction, the technical processes of papermaking underwent an even more far-reaching transformation. The stufly, dusty, ill-ventilated rag sorting and picking room, gave place to airy, cleanly, grinding and beating machinery rooms, in which the woody substance passes through the first steps in its transformation into paper, under conditions beyond all comparison better, as regards the health and comfort of employees, than what was regarded as unavoidable under the old state of affairs in rag-paper mills. To enumerate, much less dwell upon the changes that have taken place in the development, from the old-time paper mill, in which an equipment with a hollander capable of taking a charge of 60 to 70 pounds, was regarded as no mean establishment, would demand too much of our space, but we can afford brief reference to the then modern" papermaking machines, with three or four cylinders at the drying end, a width of seventy-five feet or less and a speed of 75 or 90 feet a minute. They were considered marvels in those days and were only to be found in what were classed as up-todate or ahead-ofthe-times establishments.

With the wonderfully augmented production which modern progress has made possible, the amount of manual labor has been greatly reduced and the conditions under which it is performed improved. While the modern tendency towards economy in production, has led to the increased utilization of waterpower, and paper manufacturers have been among the most enterprising and successful in availing themselves of these great natural resources, the colossal modern steam engine, in its most improved and highly developed form and the electric motor, for which distant hydroelectric plants often furnish the current, have been factors of prime consequence in promoting progress in papermaking and contributing to the regularity and certainty with which the present unprecedented demand for paper of all kinds is met.

As regards the minor features of industrial development the papermaker has not been backward. From the transportation of the logs from the lumber regions to the delivery of the finished product and the equip-ment of his place of business "the best there is," has been the universal demand. To provide for the safety and well being of the employers in every department, to promote their efficiency and to encourage them to keep pace, in their home life, and social relations, with the advances their industry is making, every possible step has been taken.

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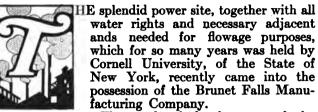
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The New Plant of the Brunet Falls Mfg. Co.

A NOTABLE DEVELOPMENT APPROACHING COMPLETION

One of the Most Modern Plants in the History of Papermaking—Ideas in Steam Economics of Importance to all Papermakers—Entire Mill Driven Electrically



facturing Company.

The work of development of the power and the building of the pulp and paper mill is

now nearing completion.

The following is a list of the officers of the Brunet Falls Manufacturing Company: G. F. Steele, president; W. K. Coffin, vice-president; David Douglas, vice-president; W. P. Martin, vice president; W. I. Osborne, treasurer; V. D. Simons, secretary and general manager; C. H. Haney, director.

This waterpower attracted the attention of Ezra Cornell, the founder of Cornell University, in the year 1865, when he bought a wide strip of land on both sides of the river, for several miles above and below the site, a company with capital of \$600,000.00 was organized, proposing to build dams, establish saw mills and lumbering manufacturing plants. The company was fully financed and a town site laid out on the west bank of the river. Owing to the death of the organizer of the company, nothing came of the project and the water power and the surrounding lands passed to Cornell University.

In 1902 the property was bought by the Cornell Land & Power Company, and two years ago they sold the waterpower rights and all lands held by them necessary for the development to the Brunet Falls

Manufacturing Company.

In addition to this purchase the present company has acquired all the lands above, on both sides of the river for several miles, giving them full control of all the head and power up to the next development, at Holcombe.

A town site has been layed out on the east bank, opposite the original town site, because of the location

of the railroad on this site.

The company owns over 5,000 acres of land, which of course, is much in excess of what is actually needed, but this precludes any possible difficulty in regard to

LOCATION OF SITE

This power side is located on the Chippewa river, at Cornell, Wisconsin, about 24 miles above Chippewa Falls, and is served by the C., St. P., M. & O. Ry.

The development will furnish about 21,600 horsepower, and provision for equipment to this amount has been made. There are 12 units of 1800 horsepower each, equipment for six of which is being installed.

WATER SUPPLY

The Chippewa & Flambeau Improvement Company has been formed, in which all the power owners on the river are interested; its object being the building and operation of storage reservoirs, and along lines pro-

Government surveys and reports propose the construction of some twelve reservoirs, having a capacity of 25,000,000,000 cubic feet. It is estimated that without storage reservoirs that there is 80,000,000,000 cubic feet going to waste, leaving a surplus over the proposed reservoir capacity of 55,000,000,000 cubic feet.

As the low water stage of the river extends over a period of less than three months, this would supply 3,245 second feet for ninety days, which added to normal low water flow will supply 18,000 to 20,000 horsepower at all times.

The mill pond created by the construction of the dam, which develops about 43 feet head, averages 1/2 mile

wide and extends six miles up river.

All of the lands which will be overflowed were cleared. In addition to the clearing work 2½ miles of highway, which ran along the river's edge has been rebuilt on

higher land.

The drainage area of the Chippewa river is 5,000 square miles, with one hundred or more lakes and ponds, at the headwaters of the various tributaries, forming natural reservoirs, which are of special interest and value. The principal tributaries above Cornell, are the Jump, Flambeau, Thornapple, Crego, the east and west branches of the Chippewa river, with many smaller tributaries.

UTILIZATION OF DEVELOPED POWER

The development has been made with the idea of its being converted, in the future, into an hydraulic and electrical proposition, but as many years must elapse before this section of the country will supply a market for the power which will be developed, it will for the present be used in the operation of a woodpulp and paper mill. The Brunet Falls Manufacturing Company, have acquired large timber areas, which with wood obtained from the settlers, will furnish a supply of raw material for about twenty-five years, and the power will be used for such a period for the purpose of manufacturing paper, and after that time the developed power will probably be used for electrical purposes only.

LOCATION AND ARRANGEMENT OF PLANT

The site of the development at Cornell lies at'a point on the river where it runs practically north and south. The mill buildings, which include the power house, grinder and wet machine rooms, cook building, machine room, finishing room, and the boiler house and wood room building, are located on the east side of the river.

The east bank has quite a precipitous slope, which allows of an economical arrangement of the cook building and the stock chests. The power house extends two-thirds across the original river channel, and this building, together with the cook building, forms part of the dam. About 180 feet of the tainter gate section of the dam is located in the original river channel, while the remainder of this section, together with the spillway and earth embankment are up on the higher ground on the west side.

The foundation, which consists of a hard micacious



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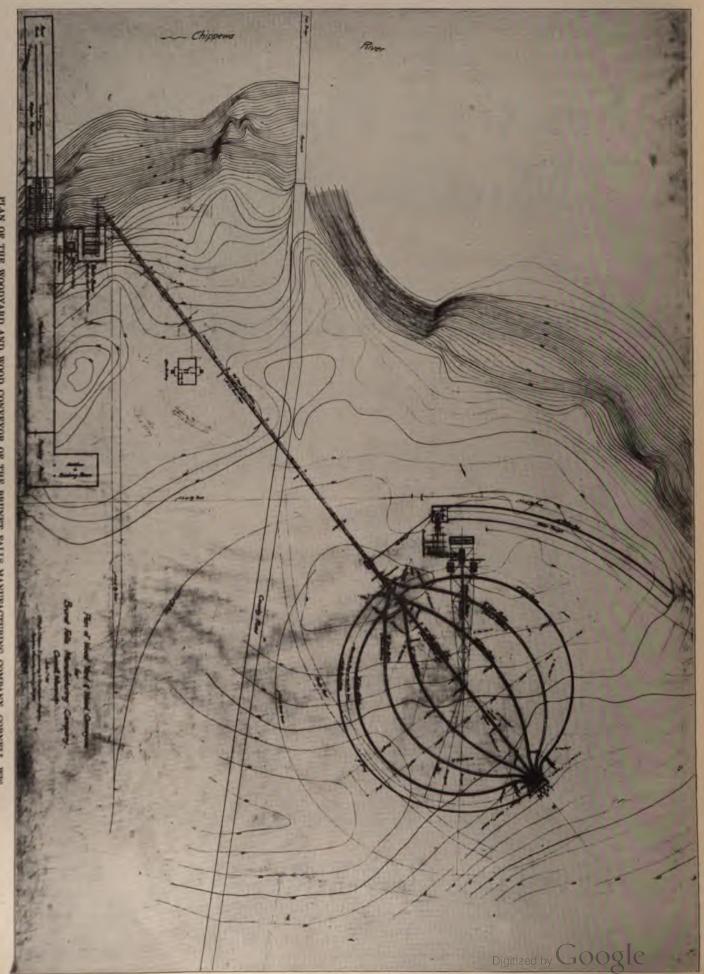
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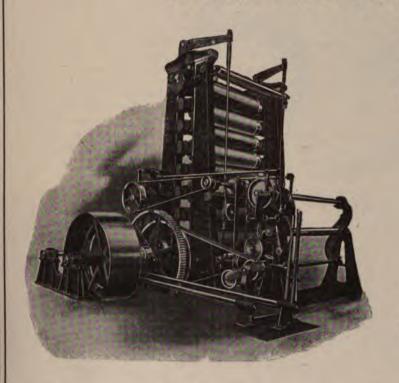
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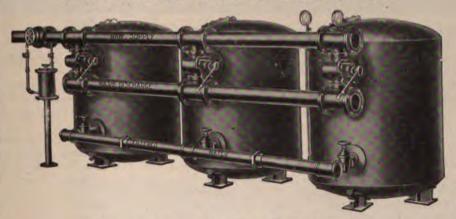
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grey granite rock, extends under the entire plant, except in the east end under the finishing room where the surface dips. It was found very difficult to work this rock to the required lines due to the peculiar formation.

CONSTRUCTION

Surveys for the work were run in March of 1911, the preliminary clearing work being started soon after. The actual construction work on the plant was not started until about July 1, 1911. The O'Keefe-Orbison Engineering & Construction Company did the preliminary surveying and engineering work, and furnished the working drawings. The details and drawings were worked out on the site of the plant by a corps of engineers and draftsmen, under the direction of T. W. Orbison, and V. D. Simons. In the design of this plant many of the ideas of V. D. Simons were worked out, some of them being unique in paper mill construction.

Everything has been designed along the latest and most approved lines, with the idea of efficiency and economy in the output of the manufactured article. It log sluice and fishway occupy 11 feet. Next to this is the tainter gate and then the spillway section. The tainter gates, 12 in number, are 20 feet long, and 14' 6" high. These are of steel construction throughout of the most improved design, and are supported by a steel trunion 7 inches in diameter, set solidly in concrete piers. These piers are reinforced with deformed reinforcing bars, so as to anchor them securely into the mass concrete work of the dam.

At the bottom of the first five tainter gates, next to the power house, which section is in the old river channel are 8 x 8 flood gates. These are located on the center line between the piers and just above the foundation rock, and directly underneath the tainter gates Tunnels run through underneath the rollway section to take care of the discharge of these gates. The flood gates were built by the Coffin Valve Company, and are of cast iron heavily ribbed to withstand the pressure to which they will be subjected. They are fitted with bronze bearing surfaces. The operating mechanism, consists of Coffin geared ball bearing stands, hand operated, located in the operating tunnel 8 feet high,



NEW PLANT OF THE BRUNET FALLS MANUFACTURING COMPANY, CORNELL, WIS., NEARING COMPLETION

is probably safe to say that few developments of the character have received the careful thought and minute attention to detail that has been given to this plant. Over two thousand drawings have been made for the building and equipment design.

building and equipment design.

The H. M. Byllesby Company have acted as consulting engineers, J. Wm. Link of that firm, passing on the structural designs.

Arthur R. Rhenisch, has been the resident engineer on the work.

L. I. Fletcher, with a large corps of able assistants has had direct charge of the construction work. During the summer and late fall Mr. Fletcher had a force of 750 to 800 men employed continuously.

DAM

The dam is a solid concrete structure with O. G curve, 500 feet long, with an extension of an earth embankment at the extreme west end, which is about 800 feet long. This embankment contains a concrete core wall, which extends down to solid rock.

The masonry portion of the dam is divided into three sections and beginning west of the power house; the

and 7 feet wide, which runs into the dam section from the power house.

Two gate hoists have been supplied for the operation of the tainter gates. Expansion joints are provided at one side of each of the piers or every 24 feet, with copper expansion flashing in each joint.

The spillway section is 210 feet long. Intermediate piers at 63 feet centers support the structural steel foot bridge, which is carried over this section. There is a nine foot clearance between the crest of the rollway and the bridge, to allow the passage of ice, and logs, without damage to same. Expansion joints are provided in this portion of the dam at every 53 feet.

Two foot lengths of 2-inch pipe are set in the crest of the dam for $1^{7}/_{8}$ inch iron pipe, which will support flash boards.

The concrete core wall which extends to rock bottom, was built from the abutment of the spillway section into the bank, which rises abruptly about 80 feet from the abutment. Concrete wing walls were extended both up and down stream to protect the fill. This was earth mixed with sand, filled in in six inch layers, and thoroughly wet and tamped. This rises to an elevation of about

63

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148, being three feet above the highest possible water. The slopes on both sides of the fill were heavily riprapped to present any possible washing which might occur.

The largest flood that has been recorded on the river at this point in recent years is 62,000 second feet. The spillway and tainter gates will allow the passage of 75,000 feet per second, and the sluice gates underneath the tainter gates will discharge 16,700 second feet. The log sluice and fishway will discharge 900 second feet, making a total discharge of 92,000 second feet. In addition to this the water wheels will discharge about 5,000 second feet, making a total of 97,600 second feet for all sources of discharge, when figuring a six foot flood over the spillway.

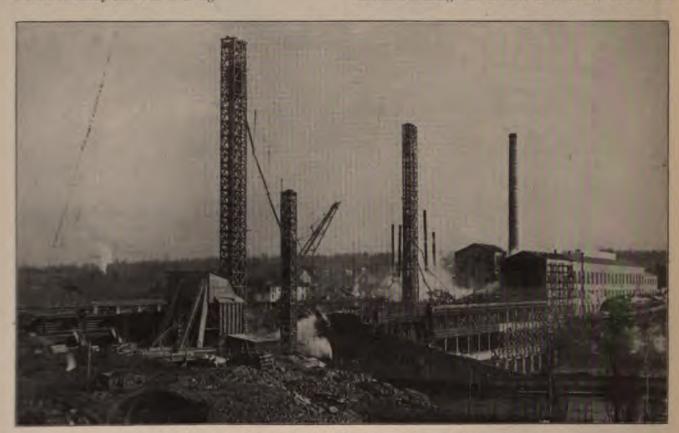
The lower sluice gates in the dam will serve two purposes, one of assisting in caring for the water in extreme floods and the other during the turning of the water in the construction period, and emptying the pond

should necessity arise for so doing.

These flumes are 255 feet long, and are divided into four sections about 64 feet long, by vertical expansion joints, making three bays to each section. To take care of these expansion joints structurally, double walls are provided in both the tail race and flume walls, and the joints protected with copper flashing.

The flumes are designed to accommodate 1,800 horsepower of S. Morgan Smith Water wheels, mounted tandem on horizontal shafts, discharging into a central draft tube. The space in which each pair of wheels is set is 18 feet wide by 13 feet, 9 inches long. This makes a rather unique arrangement as it allows the runners to extend out at each end, and project beyond the face of the walls provided for them, by setting cast iron thimbles in the walls with suitable cast iron bonnets and stuffing boxes at each end.

Therefore, the bearings which carry weight are all oil lubricated instead of running in gritty water. The outboard bearings are located in a tunnel which runs



NEW PLANT OF THE BRUNET FALLS MANUFACTURING COMPANY, CORNELL, WIS.

Great care has been exercised in the excavations and the construction of this hydraulic work. A cut-off trench has been well defined and of sufficient depth to insure the rock being free from crevasses. Those interested in this development did not spare any expense in making this structure absolutely safe from every standpoint. Therefore, they have provided an unusually large spillway capacity with quick handling gates. The tunnels through which the water will pass from the eight by eight gates are lined with ¼-inch steel plate to avoid any possible erosion from the high velocity of the water, which will be turned through them shortly after completion.

POWER HOUSE AND FLUMES AND TAIL RACE

The powerhouse is a reinforced concrete structure with the exception of the mass concrete work around the draft tubes under the flumes.

under the flume from one end of the plant to the other. The tunnel, which has an opening through the west building wall under the fishway and log sluice, and connects with the tunnels in the dam and under the flumes.

Air in tunnels of this character is usually foul, but in this case, ample ventilation is provided. Provision has also been made for the introduction of fresh heated air.

The flume walls are of reinforced concrete construction, the partition walls being three feet thick, except at expansion joints where there are two walls each 24 inches thick. The bulk head walls are 42 inches thick, all heavily reinforced.

The head gates are of what is known as the stoney gate design, and are handled with a Gantry and suitable hoists. Each of the gates are in two sections and are supported at the center of the flume by heavy structural

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steel columns, which are incased in concrete except on the upstream face, which is to be the bearing face for

the stony gate rollers.

Racks extend the entire length of the power house from elevation 123 to 143, and are made up in sections, and supported by suitable guides so that the same may be removed for cleaning and repairing. The racks are so designed, that the maximum flow of water will not exceed 1½ feet per second. The tail race has been excavated to a depth that will allow of an excellent passage of the water from the wheels. The water so emitted from the draft tube will not exceed a velocity of two feet per second.

As mentioned before this room is designed for ten grinder units of three grinders each, five of which are being equipped at this time. There will be three extra heavy Friction Pulley & Machine Works' four pocket grinders on one shaft connected to each pair of water wheels. The grinders are supported on a pair of heavily reinforced concrete beams. These run continuously through the plant, and are carried on the tail race partition walls. Between each pair of beams, under the grinders are provided the spouts, which con-

basement 15 feet in height. There are also two sub-basements, and the stock chests underneath the wet end of the building. The stock chests are six in number and have the following dimensions: width 14¹ 10¹¹, length 28¹ and depth 26¹.

The finishing building sare 44 x 80 and 51 x 68 two

stories

The boiler house is 44 x 56, and provided with basement. The boiler room is 30 feet high, and the wood

room is located directly above.

The boiler room contains three 300 horsepower Stirling boilers. These are equipped with Jones Underfeed stokers and furnaces. Ample storage bins are provided in overhead steel hoppers which are suspended from the heavy concrete beams of the floor above by structural steel saddles, which pass over the beams. Coal is conveyed to these bins by an elevating and conveying equipment, the elevating arrangement being just outside of the building, adjacent to the railroad spur and from this elevator the coal is dropped into a horizontal hellicoid conveyor, which is equipped with the necessary gates so that the coal may be deposited at any desired point in the hoppers.



VIEW OF THE WOODYARD AND STACKER OF THE BRUNET FALLS MANUFACTURING COMPANY

duct the pulp to the sliver screens in the sub-basement of the cook building. Between the three pairs of grinder beams are two log sluices, which carry the cooked wood from the cook building to the grinders.

GENERATOR ROOM

Two units have been provided for the generating of electrical power. Only one generator has been installed, at this time. This generator is a 1,200 kva. Westinghouse machine. In connection with this generator a 300 kw., 250 volt, rotary convertor has been installed with the necessary transformers, and all panel switch board, of the remote control type, of blue Vermont marble, with necessary instruments, has been installed on a slightly raised platform to one side of the room. All cable leads from the generator room are carried through tile duets in the concrete floor of the power house, and are distributed from this point to the various buildings.

MILL BUILDINGS

The paper mill buildings consist of a cook build 44 x 52, which is approximately 100 feet high, machine building 43 x 315, the machine room being 24 feet from the floor to the lower chord of the roof trusses, and the

The forced draft system for the furnaces was also supplied by the Underfeed Stoker Company of America, and consists of a suitable fan with motor, and electrical control. Feed pumps, two closed feed water heaters and a fire pump are located in the boiler room basement.

The wood room, which is the second floor of the boiler house building is equipped with all the necessary machinery, required for rossing the wood before it is sent to the cookers. After the wood has been elevated from the hot pond it is dropped into a concrete trough pond, where the water is circulated in such a manner as to carry the wood to short conveyors which pass it along in front of the barkers.

After being rossed the wood is conveyed to the bins in the cook building. The barkers are four in number and are of the automatic type built by the Witham company. A Manistee hog is located in the wood room to take care of all refuse wood. The waste from the barkers is delivered to the furnaces of the boilers by means of compound fans and cyclones. The barker knives are notched in such a manner that the shavings will not exceed 2 inches in length.

All the equipment in this room, which includes the coal conveying apparatus is electrically operated.

The Arlington Paper Company Salisbury Mills, N. Y.

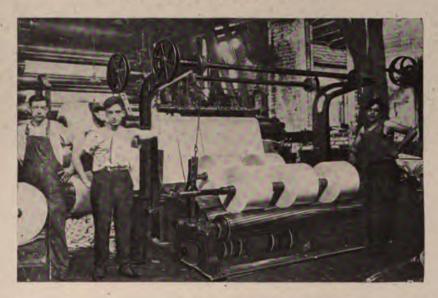
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Suitable panel boards have been located so as to conveniently handle the various motors.

COOK BUILDING

The cook building is designed to accommodate ten 7' 6" x 39' cookers, five of which are being installed at this time. These are supported on heavy 2' 6" reinforced concrete slabs, on the 124 floor and the tops will extend to the 163 floor, which is arranged with loading boxes to receive the wood from the storage bins above. These are provided with cone shaped bottom dumpting doors operated by means of a hydraulic cylinder through which the cooked wood will be discharged to the troughs on the 113 floor below. These troughs are all of concrete built below the floor level to conduct the wood to the grinders in the adjoining room. In the 97 elevation sub-basement are suitable sliver screens, which screen all the ground wood pulp, before passing to the centrifugal screens on the second floor of the power house.

The cook building is equipped with a five ton electrically operated elevator, which serves all of the various

floors in this building.

sure to occur, when striking a cold roof, a false ceiling of hy-rib construction has been suspended from the lower chord of the trusses, and runs throughout the machine room building. This ceiling slopes upward at an angle of about 45 degrees as it approaches the center of the building, where the monitor opening occurs.

To take care of the condensation which will occur in the monitor, proper gutters have been installed at the lower line of this inclined ceiling, and ducts of sufficient size will carry the condensation to the side walls and

outside of the building.

In all of the other rooms of the plant properly designed ventilators have been installed to assist the ventilation.

To economize space circular stairs have been installed.

In the finishing room two hydraulic elevators have been provided for, but only one has been installed at this time. These elevators will serve both the finishing and machine rooms.

A crane track extends the entire length of the machine room, and a ten ton crane has been provided for



THE UNLOADING POND IN THE WOODYARD

MACHINE AND FINISHING ROOM

The machine and finishing rooms are of reinforced concrete construction throughout; the exterior walls being a skeleton frame work of reinforced columns and lintels. Large windows are provided in each bay, and the intervening walls are built of double walls of hy-rib construction. These buildings, like all the others, in the plant have Federal Cement Tile Company's roofing, supported on steel trusses. In the machine room a suitable monitor is provided over the dryer section of the paper machine, so as to provide sufficient opening for the exit of the vapors which arise from the dryers. This monitor was constructed with a steel frame work which is enclosed by hy-rib construction. The long narrow opening 12 inches wide runs throughout the entire length of the monitor side walls on each side. About 15 inches from the outside of the monitor wall is a sheet metal shield which extends from about 12 inches above the main roof to a point about a foot above the eaves in the monitor. This arrangement of the shield will increase the draft of the usual type of ventilator and keep the machine room free from steam. To take care of the excessive condensation, which is

handling the equipment and paper from the machine.

In the basement of the screen room, which adjoins the beater room is a DeLaval combination high and low pressure steam turbine, connected to a Westinghouse generator, having a capacity of 125 kva. This unit was installed for the purpose of utilizing the exhaust steam from paper machine and various heating systems, when operating.

In the beater room are four 1200 pound beaters, furnished by the Valley Iron Works Co., of Appleton W.

WOOD HANDLING EQUIPMENT

All wood is brought in by rail and is discharged from the cars into a concrete log pond. The spur from the main switch runs northward in line with the end of the finishing room, and is paralleled by a second track opposite the wood yard. Just east of these tracks and parallel with them is a 400 ft. log pond, 20 feet wide and 5½ feet deep. This log pond will hold about ten cars of wood. To facilitate the handling of the logs, a circulating pump, with the necessary circulating pipes are so arranged that the water can be kept moving and so carry the logs to one end of the pond. There they

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are picked up on conveyors and carried to the slasher room, where they are cut up in two foot lengths. From the slasher conveyor the wood is carried to a conveyor which is installed on a large structural steel stacker. The stacker is of rather unique design, being the only one in existence. It is a huge structural steel arm, 250 feet long and the other end of which is 175 feet above the ground. It is supported by heavy trunions and extends up at an angle of about 40 degrees. It is counterweighted with a heavy block of concrete, which holds it in its position.

The conveyor is so arranged that openings can be made at regular intervals in the conveyor trough, and the wood deposited at any point desired. When the pile is first started the lower openings are used and as the pile increases in size they are closed and the next



G. F. STEELE President of the Brunet Falls Manufacturing Company, Cornell, Wis.

higher station is opened. When the pile is completed it will be of conical shape 175 feet in height, and 400 feet in diameter at the base.

The wood yard is traversed by concrete conveyor troughs so laid out that they will cut into equal areas the ground underneath the wood pile. Each of the concrete troughs is covered with heavy planking to prevent the logs from clogging the sluiceway. As it is desired to use the wood from the various sections of the pile the troughs will be uncovered at that point, and the logs passed in to the sluices and conveyed through to the main sluice and into the hot pond and thence elevated to the wood room.

The concrete troughs are 21 inches wide and four feet deep, the bottom being built circular to a 10½ inch radius. The water is supplied to these troughs from the hot pond at the mill by a 12 inch DeLaval Water pump, having a capacity of 4100 gallons per minute.

The troughs are given a slope which will allow the water to pass through them at a rate of a trifle over six feet per second.

This system of handling wood has been developed by V. D. Simons, general manager of the company, and forms a simple, efficient and economical method of getting the wood from the cars to the wood room.

HIGHWAY BRIDGE

In creating the reservoir by building the dam, on its present location, it was necessary to take care of a state highway bridge, which is located a few hundred feet above the site of the dam.

This highway bridge consisted of a 240 foot main arch span, supported on structural steel columns, with approaches at each end supported on frame bents.

As the reservoir level will come within a few feet of the bottom of this bridge, it was decided to build concrete piers to support the main span and the approaches. In place of the former frame supports structural steel beams were designed to span the space between the piers. A concrete floor will be laid on the approaches while a timber floor will be laid on the main span.

PULP AND PAPER MILLS

The wood after being cooked in the cookers as mentioned before, is dropped to wood sluices which convey it to the grinders, and after being ground in four pocket grinders, the ground wood is discharged into sluices and conveyed to suitable sliver screens before it is pumped to the decker and wet machine room, which is situated on the second floor of the power house building, where it is distributed to the centrifugal quiller screens furnished by Rice, Barton & Fales Machine & Iron Company, Worcester, Massachusetts. From the rotary screens the material is discharged into the flow boxes, from which point it is taken to either the deckers or wet machines. From the wet machines the material will be taken to a storage space outside the main building. From the deckers it will be taken either directly to the distributing boxes, at the paper machine, or stored in the decker stock chests from which point it is pumped into beaters, which are 1,200 lb. machines, built by the Valley Iron Works, and it is then discharged into the beater chest, where proper agitators keep the mass moving. The stock which is stored out of doors will be taken to the beaters as needed.

The paper machine is a 147 inch, 7 cylinder machine, with six sets of primary presses and three sets of main presses, and 91 dryers. Two extra heavy stacks of calenders are installed just beyond the dryer rolls. Beyond these come the cutters and reels for the Jumbo rolls. A set of double drum re-winders will be installed in the finishing room.

The machine will be driven by a 150 horsepower varable speed motor, direct connected to Marshall drive. This machine is controlled from the machine room floor. All stock pumps are electrically driven and direct connected and are stopped and started by push button control from the machine room floor. The dryer bearings are all ring oiled and the cylinder molds have Timpkin roller bearings. The steam to the dryers is controlled by a system of reducing valves, operated with compressed air.

With the deve'opment of the papermaking department of the School of Industrial Chemistry in Columbia University and the attention being given to the subject in the Lowell Institute of Technology at Lowell, Mass., there is reason to believe that papermaking in this country is likely to soon receive a great scientific impetus with marked benefit to all concerned.



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IE complete new pulp and paper plant of the Lake Superior Paper Company, Ltd., situated at Sault Ste Marie, Ont., Canada, is said to be one of the most modern and thoroughly equipped plants of its kind in operation today. The plant is located on the north side of the Falls of the St. Mary's River, just north of the Canadian lock.

The building walls are of native red sand stone, excepting a few walls invisible from the main thorough-fares of the town, which are of brick. The floors are practically all of concrete, excepting the finishing room, and the roofs throughout are of plank on steel trusses, excepting the boiler house and train shed roofs, which are of concrete.

The water power for pulp grinding is supplied by the Lake Superior Power Company through a canal about 2,400 ft. long which carries the water right up to the water wheels. It amounts to about 12,000 hp. under 18 ft. head.

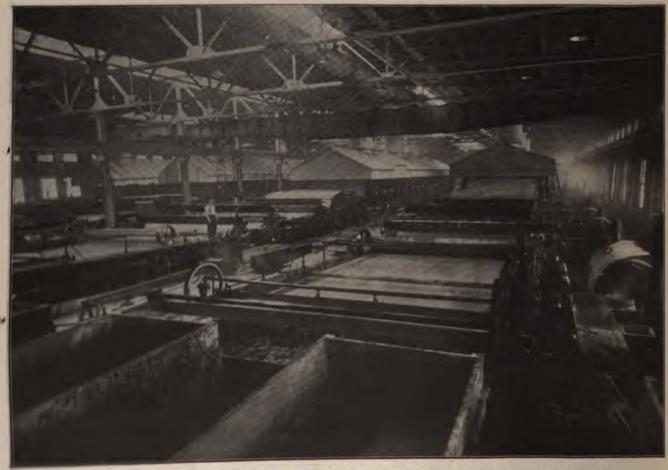
Electric power is also supplied by the Lake Superior Power Company, amounting to 4000 hp. All of the machinery in the mill, excepting the grinders and paper machines, is driven by electric motors. The current is of two kinds, alternating current, three phase, 2200 volts for the larger motors and direct current, 500 volts for the smaller motors.

The steam power plant consists of eight 500 hp. Babcock & Wilcox boilers imported from England. These boilers are all equipped with automatic stokers, furnished by the Murphy Iron Works Co., of Detroit, Michigan.

In the machine room are four high speed fourdrinier news machines. No. 1 and No. 2 machines are 156" wide, made and installed by the Black-Clawson Company, of Hamilton, Ohio. No. 3 and No. 4 machines, 198" and 186", respectively, were made and installed by the Pusey & Jones Company of Wilmington, Del.

Each machine is driven by a Hamilton-Corliss twin engine made and erected by the Hooven, Owens, Rentschler Company of Hamilton, Ohio. Large hand operated cranes, made by the Dominion Bridge Company of Montreal, Canada, are over the machines for making repairs quickly.

The diaphragm screens were furnished by the Sandy Hill Iron & Brass Works; the triplex stock and suction pumps for wires and felts by the Goulds Manufacturing Company; the roll grinder and paper machine calenders, by the Farrel Foundry and Machine Company and miscellaneous centrifugal stock and water pumps, by the Laurence Pump & Engine Company.



GENERAL VIEW OF NEWS MACHINE ROOM OF THE LAKE SUPERIOR PAPER CO., SAULT STE. MARIE, CANADA

In this picture the wet ends of the machines are shown. Nos. 1 and 2 from the left are 156 inch Black-Clawson Co. machines; Nos. 2 and 3 are 196 inch Pusey-Jones

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Bird's Eye View of the Bank Bite, Marie Davelopment of the Lathe Humber Phys Ch. in Ht. Mary's Minne Ontarin, Chundle The property of the Lake Superior Paper Company lies on the North Side of the Falls of the St. Mary's River, a little to the North of the Canadian Lock



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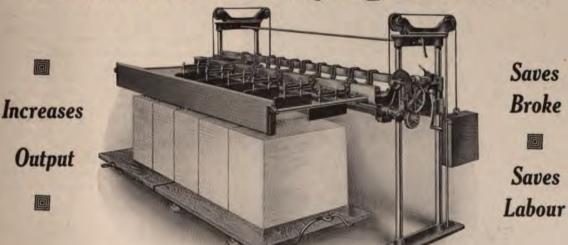
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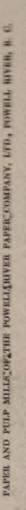
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New British Columbia Mill THE POWELL PAPER CO'S PLANT

N July 1910, from plans prepared by George F. Hardy, engineer, 309 Broadway, New York, the Powell River Co., Ltd. began the construction of a new mill at Powell River, British Columbia, and began making paper in that plant in the early part of 1912. The company is now doubling its machine equipment and more than doubling its output. The first mawide, and there has been now built a new machine room 270 feet long by 91 feet wide. The old machine room contains two Pusey & Jones machines, one 148 inches wide and the other 156 inches wide. In the new machine room are two 184 inch fourdriniers by the same builder, and these two new machines will be running in June so that the mill will then have a daily capacity of 240 tons, all of newsprint except that the mill, of course, will make its own mill wrappers. These machines are driven by motors, have 5 feet diameter dryers and are running steadily at 650 feet a minute.

The beater room is 208 feet long and 80 feet wide, and the equipment for the two old machines consists of five 2000 pound Waterous beaters and two E. D. Jones & Sons Majestic Jordans, but when this room is completed the beaters will be replaced by mixing tanks while two more Jones Majestic Jordans will be added.

The finishing room is 208 feet long by 80 feet wide, and is fully equipped with rewinders, cutters, sheet cutters, and all apparatus necessary to make it an entirely up-to-date finishing department.

The entire mill is driven by electricity, there not being a steam engine in the entire plant, except for heating apparatus and an emergency lighting unit. As originally installed the generator room contains two 1500 kw. generators and the company is now installing a new 2000 kw. generator all built by Canadian General Electric Co. The water wheels are by The Allis-Chalmers-Bullock Co. Ltd., of Canada and the Pla t Iron Works, of Dayton, Ohio and operate under a head of 162 feet. There are about 150 motors in the mill, ranging from 5 to 400 horsepower, most of which were furnished by the General Electric Company and the Westinghouse Company.

The ground wood mill as originally constructed contained 12 Waterous grinders for 32-inch wood. The stones are 54 inch diameter by 36 inch face, direct connected and installed in two lines of six each, the water wheels being in spiral cases. This equipment is now being increased by the installation of twelve additional grinders built by the Holyoke Machine Co., the new wheels being furnished by the Platt Iron Works. This will give the mill twenty-four grinders with an output of 200 tons of ground wood a day. The building which con-



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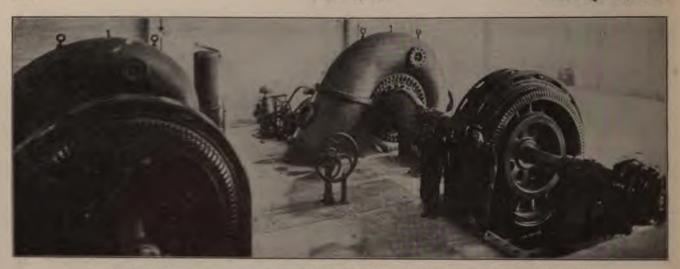
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GENERATOR BOOM OF THE POWELL RIVER COMPANY'S MILL AT POWELL RIVER, BRITISH COLUMBIA

tains these grinders is 216 feet long and 60 feet wide.

The digester building is 50 feet long and 30 feet wide and contains two 14 x 47 Manitowoc digesters. A tower acid system is used, the tower being about 175 feet in height. This sulphite mill is producing about 60 tons a day.

The wood room which is 130 feet wide and 220 feet long contains a 15 foot band saw, slashers and all the other necessary-up-to-date equipment and can handle logs up to 12 feet in diameter. The wood comes from points from 60 to 100 miles up the coast and is towed down to the mills log slip at a very low cost for transportation.

The boiler house which is 140 feet long and 84 feet wide contains fourteen horizontal return tubular boilers and two Babcock and Wilcox water tube boilers. The fuel used is California fuel oil and mill refuse which can be burned either separately or together and this installation has proven not only very efficient but economical.

The plant has an exceptionally well equipped machine shop which is said to be the equal of anything in the paper mill line on the Pacific coast, having connected with it a foundry for casting iron, brass, etc.

The mill output is shipped direct from the mill dock and is all water shipment, none of it going by rail.

All the buildings are of reinforced concrete, the construction being of highest order and the equipment of the most modern type. The paper produced is of excellent quality and has demonstrated the feasibility of making pulp and paper from British Columbia wood.

The total hydraulic power available at Powell River is estimated at about 40,000 hp. and the company's limits are said to contain easily a perpetual supply of pulpwood for at least 400 tons of newspaper daily so that this company may be expected to increase its production as fast as the market conditions will warrant it.

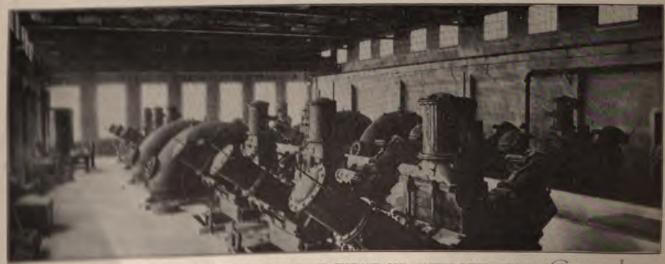
The company has built up for its employees an excellent town with water supply and sewage systems and it is a surprising sight to passengers on the passing boats which make Powell river a daily port of calls, after the rugged and practically uninhabited coast which precedes it. The managing director, is Norman R. Lang formerly the manager of the Willamette Mill at Oregon City, Oregon.

The mill was built and is largely owned by the well known lumber people of Minneapolis, The Brooks-Scanlon Lumber Company.

By a special act of the Provincial Government, the exportation of pulpwood from the company's limits was exempt from the usual prohibition and the company's paper enters the United States free of duty.

The following additional data regarding Powell River Co. mill is presented through the courtesy of the managing director:

The mill is located on the Gulf of Georgia, about seventy-five miles north of Vancouver, B. C., where a



OMINIOUR ROOM IN MILL A. POWELL RIVER PAPER COMPANY, LTD., POWELL RIVER, BRITISH COLUMBIA Digitized by

Plant of

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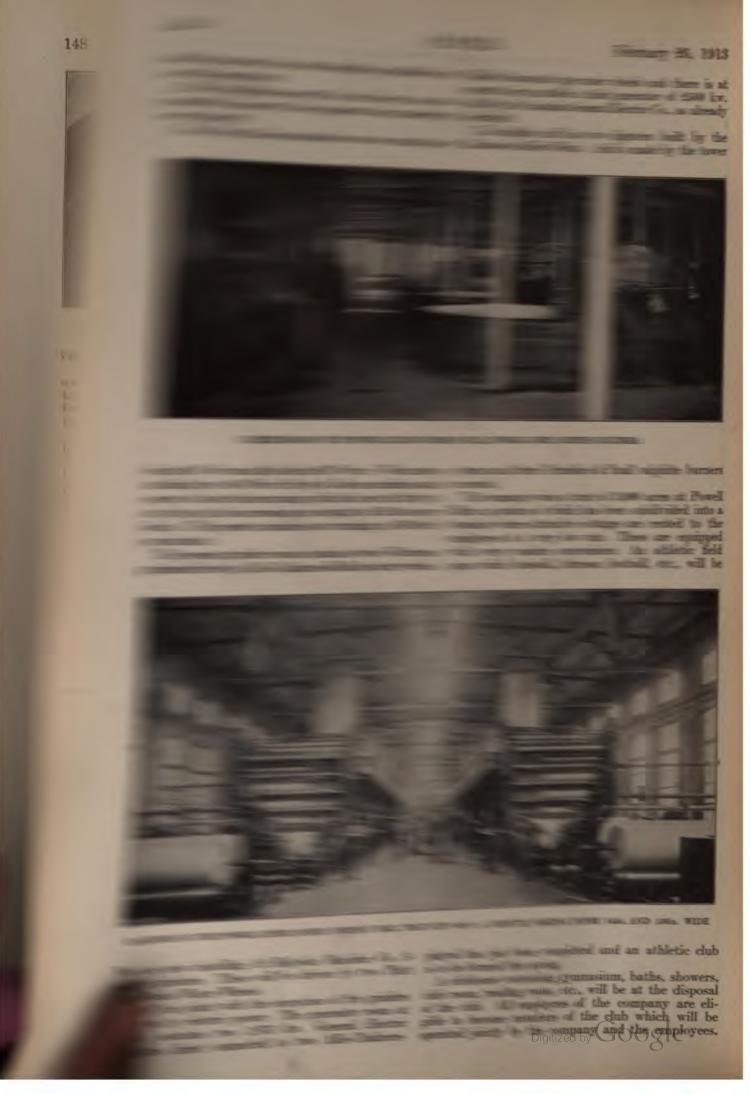
Manufacturers of

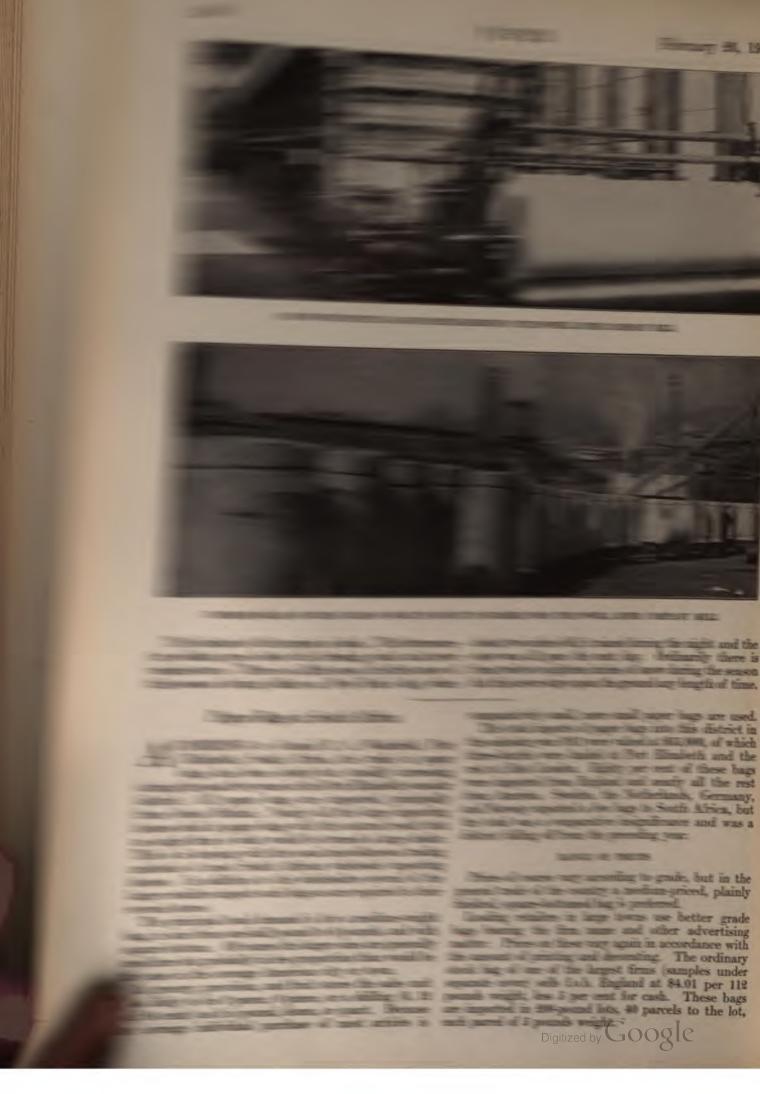
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ALBANY, N. Y.



From a Photograph Taken from a Movable Tower 120 Feet High





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foregoing that Mr. Adams is a practical man in all the departments of the paper industry, both ground woodpulp paper and sulphite.

. . .

ISAAC ALLEN, superintendent of the Ballston Paper Company, Ballston Spa, N. Y., started paper making as a cutter boy. He was put to running the machine at seventeen years of age, and at twenty had charge of the mill, a position he held for eight years, when the mill







ALBERT G. BOYCE

shut down on account of the price of paper. His next venture was the manufacture of tissue at the Phoenix, N. Y., mill, which was the first to make all wood tissue, there being at that period only one or two grades of sulphite of which wood tissue could be made. Mr. Allen has followed the business ever since, and he says that in all his experience it has never been his luck to take a mill which was in running order, but it soon would be after he got on the job.

• • •

John E. Alpine, mill superintendent of the Consolidated Water Power and Paper Company, Grand Rapids, Wis., began working at the age of thirteen in a pulp mill under his father's supervision and continued there until he had thoroughly learned the trade. He then began working on the paper machines and worked his way up until about ten years ago, when he was promoted to the position of superintendent, at the age of twenty-nine. Since then he has worked for the Rhinelander Paper Company, at Rhinelander, Wis., resigning to accept a position with E. P. Sherry to superintend the Flambeau Paper Company at Park Falls, Wis. While there he was offered a position with the Consolidated Water Power and Paper Company at Grand Rapids, Wis., which position he has held for the past five years.

. . .

CHARLES R. AUSTIN, superintendent of the Albany Paper Company, Albany, Ind., was born in Mount Solon, Va., January 28, 1868. He began his career as a papermaker as a machine tender at Circleville, Ohio, in 1885. In the fall of 1888 he moved to Ellsworth, Ind., and became shipping clerk in the strawboard plant owned principally by Crawford Fairbanks, of Terre Haute, Ind. In March, 1890. he accepted a position which took him to Melbourne, Australia, to erect a Black-Clawson 86-inch strawboard machine. This was a very trying position, as during his three years' stay he was called upon to make a number of different kinds of paper not suited to a strictly strawboard machine, and on this machine he made the lightest of manila bag papers, chipboards, candle wrapper, heavy manila, strawboard and other grades of boards.

Returning home to the United States, he went to work as machine-tender for his father, R. A. Austin, then manager of the Albany Paper Company, Albany, Ind. In 1901 his father resigned as manager and he accepted the position, which he now holds.

• • •

BERNARD BENSON, who recently severed his connection with the Elkhart Paper Company, Elkhart, Ind., gained his first experience with the Moline Paper Company, where his father was heater engineer. He served as screen boy on the machine at the age of fourteen.

After working there four years, and having been advanced to back-tender and space machine-tender, he went to Otsego, as back-tender with the Bardeen Paper Company, and from there to Louisville, Ky., where he stayed as machine-tender as long as the Old Kentucky

Paper Company operated, close to two years.

He then ran a machine in Philadelphia and in various places in New Jersey, afterward moving to Watervliet, Mich., and taking a position with the Syms & Dudley Paper Company, where he remained as machinetender for four years. When this plant was closed, after purchase by the American Writing Paper Company, he went with the Bryant Paper Company, Kalamazoo, where he remained six years, part of the time as machine-tender and part as boss machine-tender. He later served four years as machine-tender with the King Paper Company, and left there to take the position of boss machine-tender and foreman of the sorting room for the St. Lawrence Paper Mills, Mille Roches, Ont., in which he was one of the original stockholders. After a year in Canada, he returned to Kalamazoo for a short time and was later engaged as superintendent of the Elkhart Paper Company, holding this position for eighteen months.

FRED C. BOYCE, general superintendent of the Wausau Paper Mills Company, at Brokaw, Wis., started working in a paper mill for the Hudson River Pulp & Paper Company, at Palmer Falls, N. Y., and continued with this company and the International Paper Company for eighteen years. In 1900 he went to Oconto Falls, Wis., as superintendent of the Falls Manufacturing Company, and was with them three years, and from there went to Brokaw to accept the position of general superintendent for the Wausau Paper Mills



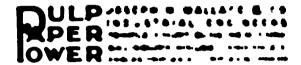
FREDIO. BOYCE



JOS. BOYER

Company. This company manufactures fibre, manila, kraft, bond, greaseproof, parchment and all kinds of specialties in paper, and their daily capacity is twenty tons of ground woodpulp, fifty tons of sulphite and sixty-five tons of paper. Mr. Boyce has been with them for the past ten years.

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WM. H. BURKE



CHAS. CLUGSTON



HUGH A. CRAIGIE

ALBERT BOYCE, superintendent of the Falls Manufacturing Company, Oconto Falls, Wis., began his career as a papermaker in the mills of the International Paper Company, at Palmer Falls, N. Y., where he worked as machine-tender and boss machine-tender for fifteen years. He has been superintendent of the Falls Manufacturing Company's paper mill for the past nine

JOSEPH BOYER, superintendent with the Aldrich Paper Company, at Natural Dam, N. Y., went to work as a boy for the International Paper Company at Piercefield, N. Y., where Beecher Cole and William Dickinson were boss machine-tenders. He worked there until he was promoted back-tender and shortly after got a place with the Raquette River Paper Company, at Potsdam, N. Y., as a back-tender. He later secured a position running a machine at Piercefield for the International Paper Company, which he filled for four years, until the strike of 1908, when, being dissatisfied with conditions following the strike, he took a position with the Aldrich Paper Company at Natural Dam. After a short interval as night superintendent at Windsor Mills, Canada, he was offered his former position at Natural Dam, where he is now employed.

W. B. BRITTON, superintendent of the Piercefield mill of the International Paper Company since 1909, was born in southern New Hampshire in 1869. He first worked for the Moore Arms & Thompson Paper Company, of Bellow Falls, Vt., where, after serving in various positions, he was promoted to machine-tender in 1886. Two years later he went with the Olcott Falls Paper Company at Wilder, Vt., and later in the year

with the Parsons Paper Company at West Newton, Pa.. serving there as machine-tender, beater engineer and paper foreman. In 1890 he went with the Crocker Burbank Company, Fitchburg, Mass. Later he was with the Jackson Paper Company, at Jackson, Mich. the Glen Manufacturing Company at Berlin, N. H., the Otis Falls Pulp and Paper Company, Livermore Falls, Me., the Rumford mill of the International Paper Company, and, in 1909, with the Piercefield mill of the same company, where he is now employed.

Mr. Britton has filled positions in nearly all departments, ranging from machine-tender to superintendent, and has made many grades and varieties of paper, principally manilas, news, book, tissue and hangings, also colored specialties, operating fourdriniers, Harper's and cylinder machines and handling sulphite and ground wood operations.

T. W. Brown, superintendent of the Parsons Pulp trade of papermaking among the fine mills of Berkshire and Lumber Company, Parsons, W. Va., learned the County, Mass., principally with the Owen Paper Company, now the D. B. Riseing Company, in Housatonic, Mass. He later went to Watertown, N. Y., with the Taggarts Company. His father originally started this mill, and was superintendent for thirty-six years. From there the son went to Ballston Spa, N. Y., with the George West Company, and became manager of the mills, holding this position for thirty years. He was for a time in St. Catherines, Ont., where, with other. he built the Montrose paper mill. He has been with the Parsons Pulp and Lumber Company for the past vear.

Mr. Brown comes of a papermaking family, his father



C. F. BUSS



C. M. CLAY



E. R. COLBUT



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A. D. Diack, superintendent of the Warren Manufacturing Company's mills, Bloomsbury, N. J., entered into the business in Orr's Mills, in Troy, N. Y., and since then has been employed with H. A. Philp & Company, Brooklyn, N. Y., Adams & Bishop, Newburgh, N. Y., Wilkinson Brothers & Company, Derby, Conn., L. Waterbury & Company, Brooklyn, N. Y., and the Warren Manufacturing Company.

. .

Thomas Drysdale, superintendent of Taylor, Atkins and Company's Mills, at Burnside, Conn., was apprenticed to the art of papermaking at the Langley paper mills, Durham, England, makers of writing paper principally for the Government. From there he went to Burneyside, Westmoreland, where they made manila writings. Leaving there he went to Birmingham, and was with Smithstone & Knight for seventeen years, for the last five years as superintendent of their mill. He left England in the year 1888 and came to this country to superintend a mill for Geo. A. Whiting, Menasha, Wis., and after one year with him went to the Cleveland Paper Company, Cleveland, O., and was with them for five years. Leaving there he went with F. G.



WILLIAM FLATLEY



F. H. FULLER

Weeks, Skaneateles Falls, N. Y., for two years, and then to the Taylor Atkins Paper Company, at Burnside, Conn., and has been with them thirteen years, making writing tablets, papeteries and envelopes.

. . .

H. D. Eliasón, superintendent of the Milford, N. J., mill of the Warren Manufacturing Company, was with the Pusey & Jones Company, of Wilmington, Delaware, for eight years as machinist and draftsman. He started in the Mechanicville mill of the West Virginia Pulp and Paper Company to learn how to make paper, and, after working on machines and as beater engineer, accepted a position with the Hammermill Paper Company, Erie, Pa., resigning from this company to accept the position of superintendent in the Riegelsville Mill of the Warren Manufacturing Company. After a year at this mill, he was promoted to the Milford mill of the same company as one of the superintendents.

. .

D. C. Everest, superintendent of the Marathon Paper Company, of Rothschild, Wis., entered the employ of the Bryant Paper Company, manufacturers of high-grade book papers, Kalamazoo, Mich., at the age of sixteen years, and in September, 1902, became identified with the Munising Paper Company, manufacturers of fibre paper, at Munising, Mich. In 1908 he entered into partnership with E. H. Williams and J. F.

Gray in the Williams-Gray Company in paper mill machinery and supplies in Chicago. He remained with this company until the organization of the Marathon Paper Mills Company in Rothschild, Wis., in 1909, whose mills he planned and has since operated. The Marathon Paper Mills Company are the manufacturers of a large line of specialties in machine glazed and dry finish wrappings, and cylinder machine products in both bleached and unbleached pulp.

8 8 8

FRANK E. FIELD, superintendent of the Orren C. Robertson Company, Hinsdale, N. H., started as backtender in the Fall Mountain Paper Company, Bellows Falls, Vt., at \$1.00 per day, when he was fifteen years old. He remembers well at that time asking the superintendent for a raise in pay and being told that the company could not afford to give it when they had to sell newspaper for six cents per pound. Mr. Field left this company and drifted around for several years, finally locating in Hinsdale, N. H., as a machine-tender. He ran a machine there for two years, when they were using nothing but bagging and manilla paper. Finally he accepted a position as superintendent of a mill in New York state, where he worked about three years, when he resigned and went back to Hinsdale as superintendent of the Fisk Paper Company, which position he held for seventeen years. He then resigned to accept a position as superintendent in the Orren C. Robertson Company's new mill, where he has remained until the present time. Mr. Field has seen the tissue trade grow from its infancy up to its present stage, and he says the changes that have been made in the quality and the great increase in the production are certainly astonishing.

FRED H. FIELDING, superintendent of the Spanish River Pulp and Paper Mills, of Espanola, Ont., began to learn the paper business very early in life, starting with the Denison Paper Company, of Mechanic Falls, Me., when he was but thirteen years old, and working for them until they gave up the business. While in their employ he worked at almost every branch of the business until he finally became a machine-tender before he was sixteen years of age. After running a machine for some time he went with the Bowdoin Paper Company, of Brunswick, Me., where he worked several years, then went with the Jay Paper Company, Jay Bridge, Me., then with the Rumford Falls Paper Company, then the Glen Paper Company, Berlin, N. H., and from there to the International Paper Company, Livermore Falls. This company about this time purchased the Jay Bridge mill, and Mr. Fielding went there to start it up again, working there as foreman until the mill was shut down for good. He then went back to the Bowdoin Paper Company, who had built a new mill at Pejepscot, Me., and was foreman there for several years. From there he went with the High Falls Pulp and Paper Company as superintendent, then with the Canada Paper Company as superintendent, and from there to his present position with the Spanish River Pulp and Paper Mills, Ltd., going there before they started building the mill.

. .

THOMAS FLATLEY, superintendent of the Orono Pulp and Paper Company, Orono, Me., was born in Middletown, O., July 29, 1871. He was educated in the public schools of Middletown, and at an early age entered the employ of the Middletown Paper Company as cutter boy, and worked himself up from that position to machine tender. Then the desire to travel and gain more

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MILLS:

RUMFORD,

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knowledge of the business came over him, and he accepted a position with the Bardene Paper Company, of Otsego, Mich., remaining with them a year. After leaving this company he worked in a number of different mills as machine-tender in the West and Middle West. In 1893 he accepted a position as machine-tender with the Glen Manufacturing Company, of Berlin, N. H., and remained with them and their successors, the International Paper Company, for twelve years. For three years of this time he was employed as machine-tender, seven years as boss machine-tender and two years as assistant superintendent. In 1905 he accepted a position as superintendent of the Union Mill of the Union Bag and Paper Company, at Ballston Spa, N. Y., remaining there two years. He then resigned to accept a position as superintendent of the Imperial Paper Mills, of Sturgeon Falls, Ontario, remaining there two years, and in 1909 accepted the position he now holds as superintendent of the Orono Pulp and Paper Company. Mr. Flatley was married in Berlin, N. H., in 1895, and has five children, three girls and two boys.

. . .

FRED H. FULLER, superintendent of the Racquette River Paper Company, Potsdam, N. Y., started in a paper mill in Franklin, O., when eighteen years old, worked three years, and then got a machine to run in the old Eagle Mill. Since that time he has changed around considerably, getting experience in different mills. In 1890 he went to Stockton, Cal., for the old California Paper Company mill, then to Oregon City, Ore., and helped start up the second machine that the Willimette Paper Company ran. He ran this machine until 1896, when he went to Watertown, N. Y., and ran a machine for the Watertown Paper Company for two months, at the end of which time he was given charge of the mill. He ran this mill as superintendent for a year and a half, and then went with the Victoria Paper Company for one year. From there he went to the Newton Falls Paper Company, Newton Falls, N. Y., and stayed there until the spring of 1900, when he took a position as superintendent of three mills for the Oji Paper Company, of Tokyo, Japan, on a two-year contract. At the end of his contract he went with the Kimberly & Clark Company, and had charge of their mill at Niagara, Wis., for two years, then went with the Hollingsworth & Whitney Company, and had charge of their Gardiner mills. From there he went to the Racquette River Paper Company, of Potsdam, N. Y. He left there to go to the Cushnoc Paper Company, at Augusta, Me., but did not remain very long, as he bought a small mill in Connecticut, but the dull times of 1907 made things so that he could not see his way clear to come out very well, so he dropped that deal. Ex-Governor Roberts, of Hartford, Conn., had a mill proposition at Unionville, Conn., at that time, and got Mr. Fuller to go in with him, but the latter, after looking the situation over and seeing the condition of things, advised him to drop the project, as he could not make anything with it under the conditions under which it was working. Mr. Fuller then went to the Pacific coast and was superintendent of the Crown-Columbia Paper Company, at Camas, Washington, for three years. While there he invented a new appliance for delivering tissue (or light-weight paper) to the dryers, and got a patent on it. It is the greatest thing that has been put on a tissue or light-weight paper machine, and is being adopted by all the first-class tissue and light-weight paper mills, and is giving great results. After this device got started, it brought out an old patent of the Tompkins & Barnes Co., of Brainard, N. Y. The claims

rather conflicted, so, rather than have an expensive lawsuit, the two combined their interests and formed a
company under the name of the Tompkins-HawleyFuller Company, which holds the rights to this device.
Mr. Fuller came East in 1911 and took charge of the
Walloomsac Paper Company, of Walloomsac, N. Y., for
the Stevens & Thompson Company for one year, but
left there in October and went back to the Racquette
River Paper Company, of Potsdam, N. Y., where he is
still in charge. It is doubtful if there is another papermaker of his age in the country who has had such a
variety of experience in different mills and in variety
of stock and paper as Mr. Fuller.

. .

H. S. Furminger, superintendent of the Crocker McElwain Paper Company, Holyoke, Mass., was about thirteen years of age when he had to leave school to go to work, and started laying off sheets at the old Buckland Mill, in Dover, England. After working at this for two years, he was promoted to the sealing and tieing up, counting and general finishing room work for a year, and then was pressed back into the machine room as a back-tender and ran the machine for a few weeks, but could not get a steady job on it as he was "too much of a kid." As he was ambitious, Mr. Prime, a friendly machine-tender he formerly worked for, got him a position as dryer and cutterman at the old Roughway mills, on government postage stamp and revenue paper for foreign countries. While working there he became very much interested in the art of washing and







THEODORE HAWLEY

beating stock, and would go back after working hours for the sake of being under the instructions of the late John Toole, who at that time was considered an expert on preparing stuff for the machine. But having heard much about the United States from his friend Prime, who worked at the old Kingsland mill in 1869 and 1870, Mr. Furminger made a start for this country in the latter part of April, 1886, and arrived in Holyoke in May. He started work in the yard, piling up rags, and as a helper on the beaters at the Riverside No. 1 mill. He stayed there six months and then went as backtender with the Newton Paper Company. A few months later when the water was high, after the great blizzard of March, 1887, he found the Agawam No. 2 mill was getting ready to start, and he gained much valuable experience there in the rag room and beater room, and finally as a back-tender on a No. 1 machine for a year, working under William House, an expert machine-tender. Mr. Furminger gained a good many pointers from him, and a year later when the No. 2 machine was started he was given the position of ma-

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chine-tender, working first on one machine and then the other, making ledger, bond, index, typewriter, superfine and pasteboards for twelve years, until the American Writing Paper Company was formed. He was then promoted to the position of superintendent of No. 1 mill, Agawam division, as assistant to the late T. W. Hitt, who at that time was division superintendent, and put in four years at making Roman and Agawam bonds, onionskin and typewriter papers.

This proved to be a valuable experience, until the late C. H. Southworth gave him a position as superintendent in the Old Hampshire Bond mill. He remained there another four years, turning out good Empire, Titan and Old Hampshire bonds. In September, 1907, Mr. Furminger was given the position of superintendent at the modern mill of Crocker-McElwain, Holyoke, Mass., who are making their famous and well-known certificate and Tokyos, bonds, envelope and superfine writings.

. .

WILLIAM FLATLEY, superintendent of the West End Paper Company, Carthage, N. Y., is of Irish parentage and was born in Middletown, Butler county, Ohio, August 12, 1873. He first worked as cutter boy at the age of fourteen in the Middletown mill, now known as the Sorg mill, and after being there one year was employed in the following mills: the old Wrenn Mill as backtender two and a half years; Columbus, Ohio, as backtender for three months; Bardeen Paper Company, as back-tender for nine months; Bacon Paper Company, Lawrence, Mass., six months; Tileston & Hollingsworth Company, Groton, Mass., as back-tender, one year; Orono Pulp and Paper Company, five months; Bowdoin Paper Company, Brunswick, Me., three months; Glen Manufacturing Company, Berlin, N. H., as machine-tender on Hosford machine. Here he started up the new 90-inch Pusey & Jones machine, and was five years with this company. For the next eleven months he was machine-tender and boss machine-tender with John Decker at Rumford Falls, Me. From there he went to the International Paper Company, at Niagara Falls, and ran a No. 6 machine one year. The next four months he spent with the Indiana Paper Company, South Bend, Ind., as machine-tender, and from there went back to Berlin, N. H., for one year as machine-tender. Next the E. Lloyd Company, Littingbourne, Kent, England, started up 90- and 94-inch fast machines for Pusey & Jones Co., Wilmington, Del., in 1900, and he stayed fifteen months with the Lloyd Company. Then he was with the International Paper Company, Chisholms Mills, Me., one year as machinetender, and from there went to the St. Regis Paper Company as machine-tender for three years. After this he occupied positions as follows: West End Paper Company, Carthage, N. Y., eight months as machine tender; night boss St. Regis Paper Company for eightcen months; St. Croix Paper Company, Woodland, Mc., boss machine-tender, and started up both 166-inch machines in one year. He was next superintendent of the Champion Paper Company, Carthage, N. Y., one year, and from there went to the Great Northern Paper Company, East Millinocket, Me., as night boss for six months. Next the E. Lloyd Company started up a 156-inch Pusey & Jones machine and he stayed with them two years, after which he went with the Anglo Development Company, Grand Falls, Newfoundland, as machine-tender for four months. He then became superintendent of the West End Paper Company, Carthage, N. Y., and has been there two and a half years.

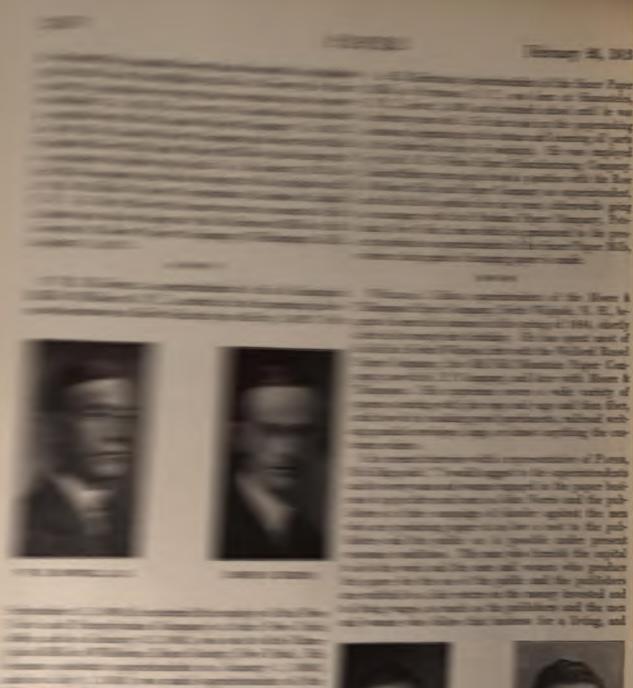
W. D. GREGOR, superintendent of the Kenogami Paper Mills, Jonquiere, Que., began work in the papermaking business immediately after leaving school in Scotland. As is well known generally, when a young lad entered a paper mill at that time in the old country, he began at the bottom and had to work his way up to the stage of running a machine, or better, if the opportunity presented itself and he was considered capable. Mr. Gregor became a back-tender with R. Tullis & Co., Markinch, Fife, making high-grade enginesized writings. After this he ran a machine for William Sommerville & Son, Dalmore, Midlothian, on superfine printings for four years. From there he went to the Guardbridge Paper Company, Fife, when they put in their fourth machine, and was with this company about seven years, making the best grades of engine-sized papers.

Ten years ago he decided to come to the United States and says he has never regretted the change, as he has been very fortunate up to the present. He started with the Oxford Paper Company as boss machine-tender. About one year later he was appointed to the position of superintendent of the paper mill, and held this position over four years, during which time the mill was increased from four to eight machines. Early in 1908 he was advanced to the position of general superintendent of the plant, making bleached sulphite, soda pulp and book papers. Last spring he was chosen as general superintendent for the large plant then being erected by Price Brothers & Company, Ltd., P. Q., Canada. He began work with them on the first of August and has since been busy getting this mill in operation. The work has progressed finely up to the present, and it is expected to start two more machines by April.

THEODORE HAWLEY, general superintendent of the Continental Paper Bag Company, was born in Harlem (now New York city), but after his father returned from the war he moved to Bristol, R. I., where the boy spent his school days and was graduated from the high school. After working in the office of a large mill there, when about eighteen years old, he came to New York city and found employment in several printing offices. He was foreman in the establishment of D. S. Walton & Company, printers and manufacturers of paper bags and boxes for five years, under Superintendent Henry L. Gilson, who, by the way, is superintendent at the present time. About twenty-five years ago Elsas, Keller & Company started business in New York, manufacturing paper bags and printing wrapping paper, and Mr. Hawley was given charge of their manufacturing. This company afterwards became the Elsas Paper Company, and afterward was merged into the Continental Paper Bag Company, of which Mr. Hawley is now general superintendent. He has directed the manufacturing of paper bags for this company for twenty-five years or more. Mr. Hawley may be considered as almost a pioneer in the modern methods of manufacturing and handling paper bags, especially as he has made several important inventions which are being used in different paper bag concerns throughout the country.

He is a director of the Continental Paper Bag Company and Rumford National Bank, and has recently been appointed on the Governor's military staff with the rank of major.

JOSEPH E. HEDIN, superintendent of the Delaware Mills, Wilmington, Del., was born in Kristiania, Norway, August 5, 1885. After graduating from the College of Technology in Kristiania as chemical engineer,



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the production of pairs from "jost" or polar-plan made ratio the soft process, remaining the soft, and made from the pairs are high-grade specialities, both as the hospitation and splittable machines as any other man in the second.



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In the Fort Mar. N. Y., began manuar 11, 1882, when a same the employ of the firm at that begins the firm at that company, but after-

Don't Throw Away Heat



This mill is equipped with two Green Fuel Economizers containing 18,606 square feet of heating surface



This and two other large mills belonding to the same company are equipped with Green Fuel Economizers



This mill is equipped with two Green Fuel Economizers containing 24,990 square feet of heating surface. The Economizers receive water at about 205 degrees Fahr. and raise its temperature 60 or 70 degrees



This mill contains a Green Fuel Economizer



This large paper mill contains six Green Fuel Economizers

INSTEAD of allowing 30 to 40 per cent of the heat of the fuel to waste up the chimney, recover it by means of a Green's Fuel Economizer, for heating water for boiler feeding, heating the mills, washing pulp, etc.

Run boilers at a high rating and employ the Economizer to do the gleaning. The Economizer absorbs heat faster, square foot for square foot from gases of the same temperature, than does the boiler

gases of the same temperature, than does the boiler

As paper mills run 24 hours per day, Economizers are highly profitable. The following mills use all Green Economizers.

American Box Board Co.
American Writing Paper Co.
Barber & Bros.
Bare, D. M. & Co.
Bernis Bros. Bag Co.
Brownville Board Co.
Burgess Sulphite Fiber Co.
Champion International Co.
Crane Bros.
De Jonge, Louis & Co.
Diana Paper Co.
Glibert Paper Co.
Glibert Paper Co.
Great Northern Paper Co.
Hamilton, W. C. & Sons
Hammermill Paper Co.
Hollinworth & Whitney Co,
Hollinworth & Whitney Co,
Hollinworth & Whitney Co,
Hollinworth & Whitney Co.
John Edwards Míg. Co.
J. E. Henry & Sons Co.
Kimberly & Clark Co.
Knowlton Bros.
Laurentide Paper Co.
Lockwood Co.
Mac Sim Bar Paper Co.
Mittineague Paper Co.
Nashua River Paper Co.
Niagara Falls Paper Co.
Norwood Paper Co.
Norwood Paper Co.
Rising, B. D., Paper Co.
Robertson, C. M.
Sault Ste Marie Pulp & Paper Co.
Traders Paper Board Co.
U. S. Playing Card Co.
Warsaw Paper Co.
Marsaw Paper Co.
Warsaw Pape

Green's Heating and Drying Systems for preventing condensation in machine rooms and for drying coated paper upon both sides at once, are unique money makers. Further information upon request.

> Send for our new book on l"Economy in the Generation of Steam"

THE GREEN FUEL ECONOMIZER CO. Matteawan, N. Y.

Chicago New York City Boston Atlanta San Francisco Los Angeles Seattle Salt Lake City Montreal

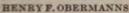
Engineers; Builders of Green's Fuel Economizers, Fans, Blowers and Exhausters, Steam Air Heater Coils, Waste Heat Air Heaters, Mechanical Draft, Heating and Ventilating and Drying Apparatus, Draft Dampers and Engines

predecessor of the Richardson Paper Company. Mr. Mullin began as lay-boy, and, at the age of fifteen, ran their machine, which was a small one, consisting of four copper dryers and four night dryers, with a capacity

of 1,000 pounds per day.

The Haldeman & Parker Paper Company, at the death of Mr. Parker, who was killed in the mill in 1868, was reorganized under the name of the Haldeman Paper Company. Their mill was torn down and rebuilt in 1874, and a 72-inch Merrill & Houston machine was installed, which Mr. Mullin ran until 1879. He then went to the Lower Mill of the same company, and ran the machine there until 1882, in which year he took







JAS. O'HARA

charge as foreman and held this position until 1891, at which time he was appointed general superintendent of all their mills.

At the present time he is general superintendent of the Richardson Paper Company, successors to the Haldeman Paper Company, with office at their board mill in Lockland, O. The company at the present time is owner of two felt mills and also the most modern two-machine board mill in the West, the board mill alone having a capacity of 100 tons. Mr. Mullin has been with the same firm for forty-eight years, and expects to stay as much longer.

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P. E. McCarthy, acting superintendent of the Rumford mill of the International Paper Company, was graduated from the University of Maine in 1902 as a civil engineer, and was employed by I. W. Jones, consulting engineer for power plant and paper mill work, from 1903 to 1904 as field engineer. He was then employed by the International Paper Company from 1904 to 1908 as construction engineer on their pulp mill at Livermore Falls, Me., and sulphite mill at Chisholm, Me. He was transferred to the Rumford mill of the International Paper Company as resident engineer in 1908, and remained in this position until June, 1912, when he was appointed acting superintendent, in which position he is at present employed.

. . .

WILLIAM McCorrendale, superintendent of the Parsons Paper Company, Holyoke, Mass., was born June 15, 1851, in the village of Overton, town of Greenock, Scotland. He served seven years' apprenticeship at the Overton Paper Mills, going to work at the age of ten. In 1868 he left Scotland and, coming to America, was engaged by Orrs & Company, of Troy, N. Y., to tend machine at their Pittstown mill. At that time Horace Greeley was urging young men to go West. Young

McCorkendale took his advice and went, and spent two years as machine-tender for Bremaker, Moore & Co., of Wawasa, Ind. Returning East in 1873, he was engaged as machine-tender by Crane & Company, of Dalton, Mass., for eight years. At that time it was thought that No. 1 ledger paper could not be made outside of Berkshire County, Mass., but Mr. McCorkendale thought it could, and to test the matter, in 1881 moved to Holyoke, and with the Parsons Paper Company made the attempt. The result was satisfactory, so that after eight years they built the present mill at an expense of nearly a million dollars, and are now making nearly as much ledger paper as all the other ledger mills combined. Next year Mr. McCorkendale will have completed thirty-two years of service as superintendent of the Parsons Paper Company.

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L. McIntyre, superintendent of the McIntyre Brothers' Mills, Fayetteville, N. Y., has been in the paper business practically all his life. He started in Brownville, N. Y., and worked in the mills in that vicinity for a few years, finally landing with the Watertown Paper Company, where he became a machine-tender. From this position, at the age of twenty-three, he was promoted to the superintendency of the mill, which position he held for a period of about six years.

Since that time he has had numerous positions as foreman and superintendent of mills, both in the East and West. For the past two years he has been superintendent of the Island Paper Company, Carthage, N. Y., having gone there from the Gould Paper Company, of Lyons Falls, N. Y. His experience has been in the making of coarser grades of paper such as news, manilas, bag and all kinds of fibre papers. Recently he became associated with his brother, W. E. McIntyre, of Syracuse, having formed a partnership with him and purchased the interests of the Lawless Paper Company in their tissue mill at Fayetteville, N. Y.

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HENRY F. OBERMANNS, superintendent of the Arlington Paper Company, of Salisbury Mills, N. Y., has probably had as thorough preparation for their work as any man in the business. On his graduation from high



SAMUEL PARTINGTON



WM. T. SCHENCK

school in Kolberg, Germany, his father, who was superintendent of the Varziner Papierfabrik, Hammermühle, took him into the mill as an apprentice. There was no favoritism, however, and the boy had to work his way up as common laborer, and also to serve one year in the repair shop, which made a fair mechanic of him, and at eighteen years of age he was running the paper ma-

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apperintendent of Greento this the s deto ager arkers, and has been in of age, The same of the same of the Samboe Paper Mill, The second secon

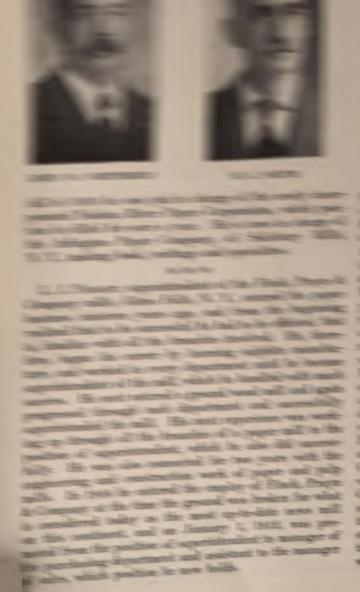
The Same of Hallmank Paper Company, the me from there went to L Libby Paper Collar to see some of the three of States, he started The Company, at Milburn, and the state of t Since then he has The second secon

The Champion of Hamilton, O., began his Willer something over



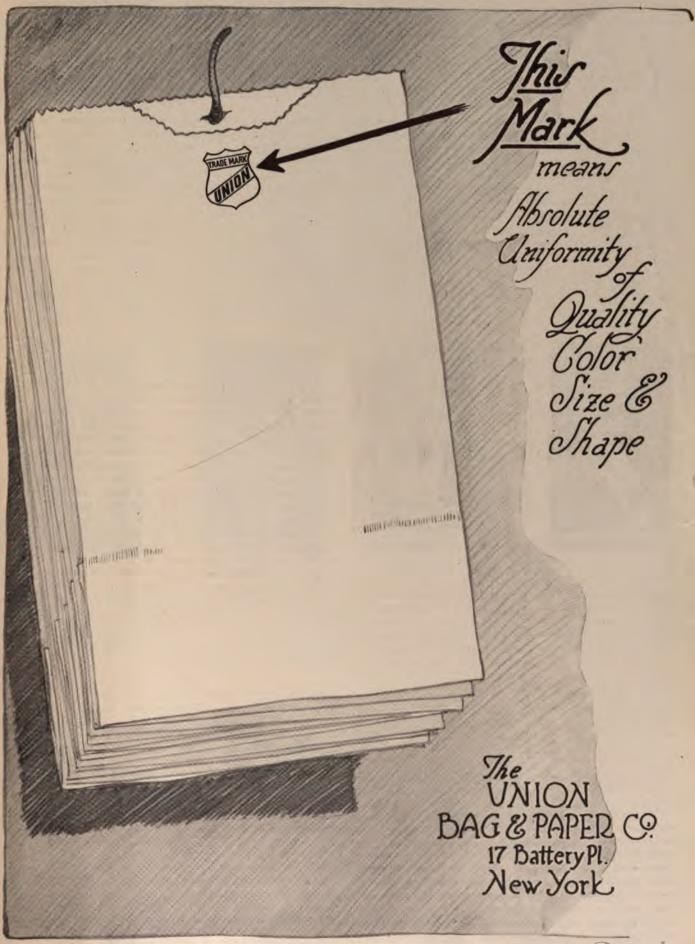


JOHN A. SPAULDING DESIGNATION OF THE PERSON NAMED IN and a beard mill in Tippeand the second for a number of years. bow and left as a machinemachine-tender with the Company, at Rockdale, Ohio, Black, of the Thos. Black to him, and in agentuating business for several Black & Clawson, going on the up machinery. While in their Suttillo, Mexico, bought an entire in the Miami Valley, and he were and start this plant. Schenck made a record for and about the middle of August New Year's day, a remarkthe fact that he could not conspecies nothing but Spanish. After being in Mexico and back to the Black & Clawson became bad in the panic and weeked for the Beckett Paper and the was called back to Mexico, where he the then returned to Ohio. About in the Champion Coated Paper Company mill started as a conting mill only, and he went to work me is now one of the four or five who started Digitized by GOOSIC



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AMUEL H.CADY

PHIL A. HAEVERS

E.H. MANGER

H. B. CLEEREMAN SECRETARY

GREEN BAY BARKER COMPANY

MANUFACTURERS OF ROBERTS & LIBERT POTARY PULP WOOD BARKER

SABLE ADDRESS BARKER"

GREEN BAY, WIS.,U.S.A.

Dec. 21, 1913.

Paper, Inc., 117 East 24th. St., New York City.

Gentlemen:-

Your letter of the 9th. inst. to hand, and answer has been delayed on account of the writer's absence from the city.

We have decided to take up a half page ad weekly in your paper. You can mail us contract for this, and we will sign same and return to you.

We must say that, from our estimation and general views, we think that the advertising in your paper has certainly been very successful.

He Oleverna

Yours very truly,

GREEN BAY BARKER CO.

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started his career in the paper industry when a boy of eleven years old. He was born in 1875 in Butler County, O., and most of his early training in the paper business was obtained in the plant of the J. H. Friend Paper Company, of West Carrollton, O. When twentythree years old he went to work for the West Carrollton Parchment Company, gaining his first knowledge of the manufacture of vegetable parchment paper and finally becoming superintendent, a position which he held seven years. In 1900 he invented a new improved parchment paper machine, which has proved very successful. A few years ago he went to Kalamazoo, Mich., and started, and is now superintendent of, the Kalamazoo Vegetable Parchment Paper Company, which is manufacturing vegetable parchment paper and wax paper, and a number of specialties.

MAX ZIMMERMAN, superintendent of the Mac Sim Bar Paper Company, of Otsego, Mich., was born in Berlin, Germany, thirty-nine years ago, and came to this country with his parents at the age of eight years. He began the life of a papermaker at the age of fifteen years as a screen boy, and worked all the way through the machine room, then took a position as boss beater man with the Alexandria Paper Company, Alexandria, Ind., at the age of twenty-four. After this he accepted a position as night superintendent with the Wolf River Paper Company, Shawano, Wis., and then took charge of the La Salle Paper Company Mills, South Bend, Ind. Afterward he accepted a position as assistant superintendent with the United Box Board Company Mill, at Wabash, Ind., where he stayed five years, and then accepted his present position as superintendent with the Mac Sim Bar Paper Company, with whom he has remained one and a half years.

JAMES O'HARA,* superintendent of the Brownville Board Company, Brownville, N. Y., has had a wide experience, purposely traveling from one place to another to gain knowledge, and has made paper from straw, rags, rope, jute, hemp, bagging and sulphite. He started in the business in a book mill for the Thompson Paper Company, Ontario, Canada, in 1887. In 1892 he helped start the Rumford Falls Paper mill, at Rumford Falls, Me., working as machine-tender, and in 1903 accepted a position as night superintendent for the E. B. Eddy Company, Hull, Quebec. In 1906 he took charge of the Northumberland Paper Company, Campbelford, Ontario. In 1908 he took charge for the Dexter Sulphite Company, Dexter, N. Y., and in 1909 he went to Brownville and took the position he now occupies.

The Increasing Cost of Materials

The prices for lumber have increased during the last fifteen to twenty years so that they now represent at least an increased expense for the ground and woodpulp mills of \$2 to \$2.80 per ton of pulp: this increase is a direct consequence of the fact that the number and capacity of the wood-consuming factories in this country have grown so extensively during these years. The reduction of less than 15 cents per ton of pulp in the costs of management, which can be obtained in the case of enlarging, is of very little importance. During the last twenty years it has happened several times that the price of ground woodpulp has gone down to 25 to 30 per cent, because the production, not only here but also in Northern Europe has increased too much and too

rapidly. This increase of the production is always ascribed, not only to new competing mills, but also to enlargements of the old ones, which in most cases have been caused by a desire to effect a saving in the costs of management by making the mill larger. there is any question if a mill is to be enlarged or not this circumstance should be given only very slight consideration; the supply of raw materials and the facility of marketing the products ought to be deciding.

-Norwegian Report.

The Preparation of Adansonia Fiber

WRITER in the Papier Zeitung gives some practical details on the manufacture of paper from Adansonia fiber. This paper was required for the manufacture of paper spools for spinning yarn, and one of the most important points in the specification was that the paper should not disintegrate or become distorted by the usual treatment of the yarn in hot water. Until the Adansonia was tried, no paper could be made to fulfil this requirement, but paper made from

jute bagging came nearest to the mark.

The rough Adansonia bast was first chopped up in a rag-cutter and then boiled with 15 per cent of lime under a pressure of 60 lb. per square inch for eight or ten hours in a spherical rag boiler. It was washed and emptied into the draining chest. The stuff was not quite clean, being still contaminated with residues of bark. It was therefore put in the kollergang, and subsequently broken to three quarter stuff after washing with an oldfashioned flat sieve, not with the drumwasher. material thus obtained was as clean as unbleached jute, and when mixed with 25 per cent of jute fiber it gave an extraordinarily strong paper which behaved splendidly when tested with hot water.

As a substitute for jute hessian for bagging, nothing uld be better than Adansonia paper. Washing sieves could be better than Adansonia paper. are still in use in paper mills where much jute bagging or other unclean raw material is employed; their cleansing action far exceeds that of the best drum washers. This cleanliness outweighs the slightly higher loss of fiber which their use occasions.

Development of Lake Superior Paper Co. Continued from page 144

and the paper mill, which will largely consume the products of the pulp mills, has a capacity of 200 tons of

newspaper per day.

The H. E. Talbott Company, of Dayton, Ohio was the general contractor and in addition to building the plant it also erected all of the piping and electric wiring for lights and power throughout the mills. Actual construction was commenced about August 1, 1911, and the first two machines were started up in the last week of June 1912.

Taking into consideration the size of the mills and the great amount of work done in remodelling the grinder room, the time consumed in the erection of this plant was remarkably short. The buildings were all completed when the first two machines were started. The remaining two machines were started, one just before and the other immediately after the first of January 1913.

The president of the company is H. E. Talbott and the vice president and general manager is George H. Mead. George F. Hardy, of 309 Broadway, New York, was the engineer and Howard S. Taylor, his representative was the resident engineer in charge of the Digitized by GOGIG

construction.

^{*}Mr. O'Hara's biography was inadvertently omitted from page 176 where his portrait appears.

WM. G. MATHER, Pres. and Treas. L. B. STEWARD, General Manager WM. P. BELDEN, Vice-Pres. S. L. MATHER, Asst. Treas.

C. H. WORCESTER, Secretary E. P. STRONG, Asst. Secretary

Munising Paper Company

Manufacturers of

Bond Papers and High Grade Fibre Papers

Sulphite and Paper Mills

Munising, Michigan

225,000 lbs. DAILY

Papers of Superior Quality

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National Paper Trade Association

Jobbers Meet in Tenth Annual Session in New York—Discuss a Uniform Cost System

THE tenth annual meeting of the National Paper Trade Association was convened in the Hotel McAlpin, New York, on Wednesday, February 19, with President John Leslie in the chair. After dispensing with the reading of the minutes of the previous meeting the roll of associations in membership was read by Secretary W. C. Ridgway, which showed a large attendance.

The annual address of the president was then made by Mr Leslie, who spoke briefly regarding the accomplishments of the association. He said a great deal had been accomplished in making members of the trade better acquainted with each other.

"We have accomplished a great deal, principally in the matter of getting together and knowing each other, making ourselves into a cohesive force, and to the extent that we can carry out that idea we shall be powerful and successful; but when individual items of the whole, or 'atoms,' begin to take meteoric flights of their own it is not conducive to the welfare of the whole body."

The next business taken up was the report of the Corresponding Secretary, which was read as follows:

SECRETTARY'S REPORT

This meeting marks the completion of the ninth year of the existence of this association, and the occurrences of the past year have proved its worth and value to the trade.

Since the last meeting, a very gratifying increase in the membership has been made, chiefly by the election of the Pacific States Paper Association with an individual membership of eleven. There has also been an increase of five in the individual membership of the other constituent associations, which brings the total to an even 200, the high water mark since its organization. Gratifying as this increase is, greater effort should be made to include in the membership all paper jobbing houses in the territory covered by the local associations. Such houses number at least seventy-five and certainly fifty could be induced to join the association, if a vigorous and persistent effort were made. It is earnestly recommended that the officers of the constituent associations give this subject their serious consideration.

Early in the spring, the manufacturers of writing paper advanced prices and the manner in which the jobber handled the advance was convincing proof of the value of organization and justification of the existence of this association. It would be useless to review the happenings at that time, for they are familiar to you all. It is sufficient to say that there was less confusion in the trade than at the time of any previous advance, and the jobbers profit was more adequately protected.

and the jobbers profit was more adequately protected.

The "net price list" idea was firmly established in the central and western states at a meeting of the jobbers in that territory held in Chicago in May. Your Corresponding Secretary is informed that the results show a very satisfactory increase in the percentage of profit. The principle that all customers should obtain the same price in like quantities is well recognized in all lines of trade as good business, and that this price should be fixed so as to return an adequate profit is plain common sense. Ruinous price competition seems to appeal to fewer houses every year and today is largely confined to a few houses which apparently have not been able to break the habit. The "net price list" is being adopted by many of the Eastern members and the prediction is made, that it will be universally used in another two years. It is a moneymaker and when the members thoroughly recognize the fact, old prejudices will be put aside. It is merely a matter of education which takes time

a matter of education, which takes time.

Just a thought or two as to ways for improving trade conditions. The paper jobbing business of necessity is both retail and wholesale, but it would seem as though it were being conducted more as a retail than a wholesale business. This is manifestly wrong and it should be the aim of the jobber to place it on a wholesale basis. For instance, today the unit on which selling prices are based is the ream and the case price is the ream price less a discount of approximately five per cent. This is a retail method and, if the paper business is to be conducted as wholesale business, the case should be the unit on which the price is based and a percentage added for a smaller quantity. The case price should be fixed to return the jobber an adequate margin of profit on orders of that character and, in determining the ream price, full consideration should be given to the greater cost of marketing the smaller quantity as compared to the larger. The elements which enter into this increased cost are known to all and it would be a waste of time to discuss them here. It is maintained, however, that were a paper jobbing business to be established now for the first time, this method would be adopted. Also, that, when prices were fixed, it would be found that the

case price would be slightly higher and the ream price considerably higher than present prices. The paper jobbing business is a wholesale business, so why not conduct it as such? The thorough consideration of this thought is requested. Its application would mean more adequate profits.

The thorough consideration of this thought is requested. Its application would mean more adequate profits.

There is a practice which is growing and which, if persisted in cannot but result in a material reduction of profits. I refer to the jobber paying the delivery charges on sales from stock to out-of-town customers. This practice cannot be defended except on the ground that the other fellow is doing it. It is far from being customary at present but, if reports are to be given any credit, the practice is increasing to an extent which is alarming. Measures should be taken at once to stop it, before it is too late.

The report of the treasurer was then submitted and took the

The report of the treasurer was then submitted and took the usual course, following which, the report of the Executive Committee was read by the Secretary as follows:

REPORT OF THE EXECUTIVE COMMITTEE

The Executive Committee held its annual meeting on Monday of this week and was in session the entire day. A large number of matters were discussed and a number of them are here brought before the general meeting for the action of the association.

The question of the revival of the summer meeting was brought

The question of the revival of the summer meeting was brought before the board, a discussion was had, and the matter is to be brought to the attention of this meeting without recommendation, for the purpose of obtaining an indication as to whether or not the summer meeting is advisable, at least from the standpoint of the general membership of the association.

The question of the value of the Bulletin was also discussed, an

The question of the value of the Bulletin was also discussed, an this meeting is to be asked to give a little indication as to whether the Bulletin, which costs about \$40 a month at the present time, is worth continuing.

NOMINATIONS FOR OFFICERS

Under the power vested in the board by the by-laws, the board submits the following nominations for officers during the ensuing

President—John Leslie, First Vice President—Joseph T. Alling, Second Vice President—Thomas F. Smith, Treasurer—R. P. Andrews, Secretary—Fritz Lindenmeyer.

These are all renominations of present officers.

At the suggestion of the chair, the subjects mentioned in the report of the Executive Committee were taken up for consideration.

THE QUESTION OF HOLDING A PUMMER MEETING

The first item was whether or not the summer meeting should be revived. The secretary said a motion to hold a summer meeting this year would be in order and would bring the question before the meeting.

R. P. Andrews, speaking, as he said, for the Baltimore and Southern Association, announced that this association was unanimously in favor of holding either a summer meeting of the

"In our meeting we thought the idea of an outing would possibly be better than a regular meeting. As we know, there has been very little business transacted at the summer meetings, but we think that a great deal of good has come from getting together and talking things over. We have more opportunity at those meetings than we do at the winter meeting where so much business is transacted, and therefore I wish to state on behalf of the Baltimore and Southern that we are unanimously in favor of holding either a summer meeting or let it be known as a summer outing, dispensing with the business."

Mr. Sinex, for the Philadelphia association said they were not in favor of a summer meeting, as the members had difficulty in arranging for vacations. It had been his pleasure, he said, to attend all summer meetings that had been held, but he did it at a sacrifice to himself.

Mr. Andrews, moved to hold a summer meeting or a summer outing, as the sense of the meeting might be; and it being put to a vote was lost.

On the question of the desirability of continuing the publication of the Bulletin the consensus was favorable, and it was finally decided to publish it every month or as occasion required the matter being left to the discretion of Secretary Ridgway and the Executive Committee.

ADVERTISERS PAPER MILLS

JAMES . . W. DATE . PRES . FRY

MAKERS IN HOLYOKE OF FINE PRINTING PAPERS FOR ADVERTISERS



REPORT OF THE COMMITTEE ON CREDITS

The report of the standing committee on credits was submitted by Charles Addoms. After reporting progress the following statement was read bearing the signatures of the full committee:

"The terms recommended by the national association two years ago seem to have had considerable effect in the right direction, as evidenced by the shorter terms and quicker returns enjoyed by the different members, especially those who have clearly promulgated their terms and followed the policy of edu-cating their customers.

"The terms recommended by the National Association were as

follows:

Resolved, that an extreme limit for period and rate of discount and a maximum net time be agreed upon, and to this end

it is further 'Resolved, that the rate of cash discount, the period of cash

discount, and the limit for time, be as follows:

"On writing or printing paper, known as 'White Goods' the maximum cash discount shall not exceed 3 per cent for a period of ten days (liberally interpreted as meaning the 10th of the month following purchases), 2 per cent for a period of thirty days (liberally interpreted as meaning after the 10th but before the end of the month following purchases). Alternative as to net time limit not to exceed sixty days. Interest to be charged on all accounts that are past due on this basis.

"On wrapping or papers known as 'coarse goods' the maximum cash discount shall not exceed 2 per cent for a period of ten days, alternative thirty days net. Interest to be charged on all accounts past due on this basis."

"Doubtless there have been many violations, especially in applying the interest charge on accounts over-due on the basis of time limits mentioned. Nevertheless progress has been made, for it is the experience of most of us that whereas numerous customers paid 'any old time' during the month following purchases and took cash discounts, a goodly number of checks are now received on or before the tenth of the month. The experience of the house I represent is that we now receive at least twice as many checks on the 10th and 11th of each month as we did before publishing our existing terms, which terms are the same as adopted by the National Association two years ago, except that we stop at thirty days, instead of allowing the alternative of sixty days.
"I might add here that the 10th and 11th of each month are

the busiest days our cashier has, and in addition I will say that very seldom does it occur that we collect less than 90 per cent of the previous month's business, and when it does go below 90 per cent it is a question of dollars rather than the number of accounts. As a matter of fact, we often receive more than 90

As the years pass, all lines of business realize more and more e importance of reliable credit departments. The activity of the importance of reliable credit departments. the National Association of Credit Men is well known, to say nothing of the good accomplished by its' local branches in every large city throughout the country. The Y. M. C. A. branches are bending considerable effort toward the education of the

are bending considerable effort toward the education of the credit men, in regular series of lectures.

"There should be and is a growing tendency among competitors toward co-operation and good faith, as evidenced by the informal weekly or monthly meetings held by credit men in the paper business, notably those in Chicago, Philadelphia, the Central States, and recently here in New York, Slow payers, time-stealers, and those in the habit of making unjust claims are freely discussed at these meetings, and as a result doubtful accounts are watched. Should a failure or suspension occur the credit men can pull together and get more out of the wreck than if there were no friendly or co-operative spirit prevailing.

Your committee recommends a campaign of education as a positive betterment of credit conditions. Those houses giving 3 per cent cash discount should explain to their customers who do not take advantage of it that they are sacrificing an investment at the rate of 36 per cent per annum. Even if they borrow money from the bank in order to discount their bills the investment nets a very handsome profit. And if a bank whose business it is to lend money refuses them a loan it is a question whether it is good business for us to extend extra credit. A gentle, steady, but firm persistency in the education of our customers would force them to realize that they too must be diligent in the collection of their outstandings in order to discount their bills with us.

It seems as though some of the credit men in the paper industry require a little education also. Care to hold on to your profits is fully as important as trying to make them. The first consideration, if we are to believe J. P. Morgan, is the moral risk: following which would come ability, and then the financial risk. All these go toegether, for even if a customer has enough assets over liabilities we do not want to extend credit if the moral

risk is not good.
"Credit men are a little prone to think of the amount of the sale rather than the amount of profit there is in a contract. If

they would at these times picture the amount of merchandise they are delivering for the amount of profit accruing they might hesitate. As an example, say a contract is taken to supply 300 reams of 38 x 50—120 M. F. Book per month at 4 cents per lb., and terms of 3 per cent cash discount or sixty days net are granted. The first bill, we will say, is charged Jan. 2nd, \$1440.00. Before the time on this bill reaches the end of the discount period \$1440.00 more is delivered and charged on Feb. 1st, a total of \$2880.00. Then the customer decides to take advantage of the option of sixty days time which you have granted him, and a third delivery of \$1440.00 is made on March 1st, making a total of \$4,320.00, and the first charge is just due, but being only the beginning of the month you wait a week or two before you even think of asking for your money. This continues, your customer always owing \$4,320.00. How much have you made? Just a gross profit of about \$90.00 on each delivery, plus the cash discount your customer has sacrificed, a questionable total gross profit of \$125.00, or on the three deliveries \$375.00. If your customer fails and you lose all (as you are apt to on most publications that fail), you would be compelled to sell 864 tons of the same class of goods at the same profit, representing sales of almost \$70,000,00, to equal the loss sustained, and this would be

only a gross profit.

"If your credit man could picture these 900 reams or 450,000 sheets of 38 x 40 laid end to end stretched along a railroad track for 855 miles, and reflect that if he gave credit for that amount of paper perhaps his next thought might be how many miles of paper would have to be sold to equal enough gross profit to pay for such a loss. Accurate figuring with a sharp pencil produces the alarming number of 5682 miles of paper 381 wide. All for a profit of \$375, less the cost of doing business, whatever that

might be!
"The three major problems in every mercantile business are

"Your committee desired to impress upon the minds of the members the vital importance of the last—namely, 'Credit Extension.'"

THE AFTERNOON SITTING

At the afternoon sitting president Leslie introduced Mr. Fort of Philadelphia who discussed the ledger paper question, in which he paid a high compliment to the local paper trade association of New York.

Secretary Ridgway in taking up the regular order of business submitted the report of the blotting paper committee, which

read in part as follows:

"Conditions in the blotting portion of the business while showing an improvement over last year, are far from satisfactory. This part of the business is such a small one with the large majority of the dealers that comparatively very little attention is paid to it. while it might be made a very profitable, even though

small, feature of the sales. small, feature of the sales.

"Although there are but six well-known manufacturers of blotting paper in the country, they have as yet been unable to get together with dealers and fix satisfactory selling prices on the various grades that would be profitable to both sides. Some of the mills have put a fixed selling price on their higher grades, which seems to be very satisfactory to those handling these lines, but as the large orders are generally placed on the lower grades it opens the way for a general cutting of prices by both the manufacturer and the dealer, the margin of profit at times dwindling down to two or three per cent, so that the question of dwindling down to two or three per cent, so that the question of securing the order becomes uninteresting.

These conditions apparently prevail in New York and Chicago to a larger extent than in other sections, as reports from different

territories show a satisfactory margin for handling.

"If the members of the local associations will do a little missionary work in their own territories, and work up some enthusiasm among their own members who handle blotting, it will assist this committee very materially. A satisfactory settlement of the blotting situation would have a tendency to help the dealers on other lines.

REPORT ON COVER RAPERS

James White, chairman of the cover papers committee, pre-

sented a brief report as follows:
"Your committee on Cover Papers suggests and recommends that for new lines of covers, the colors, sizes, weights and finishes, should be greatly restricted from what has been the custom here-tofore. That lines generally advertised by the mills should be carried in good quantities by the mills, regulated in amount by the volume of sales. That the members of the Association individually work in the direction indicated by this suggestion."

In explanation he said that the committee was unable to fix any special number of colors or finishes, sizes or weights which

would have to be left to the individual firms.

On motion of J. A. Carpenter a committee was appointed

prepare data on cost accounting.

The next order of business was reports from local association and Mr. Ridgway read the report of the New York association as follows:

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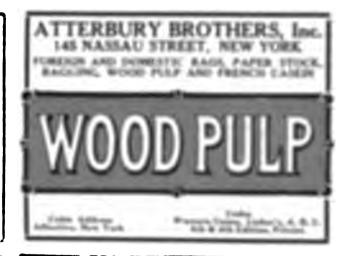
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THE REPORT OF THE NEW RORK ASSOCIATION

"The New York Association would report that it has grown in members, its membership now numbering 53 and its yearly contribution to the National Association amounting therefore to

\$1325.00.

"It would again protest against the invasion of its territory by paper jobbers of other cities as there are plenty of jobbers within the city to take care of all the needs in the line of paper but if our sister concerns feel that they have burst the swaddling clothes of their native towns and are looking with longing eyes on our five millions of market feel that they must come, we will heartily welcome them if they take a store, keep a line of merchandise, figure in their cost of doing business and join our association; but if they use this field to sell in at lower prices than they do at home, figuring that every dollar of business secured, no matter at what price, is gain; operating as does one concern on such a small margin above cost that one partner says they lose money on the New York business while the others say it is a profit, why gentle-

"We understand that a firm from out of town took an order the other day for twenty two carloads of paper. If they made any money, we rejoice with them but if they took it at a margin which swells only their sales and their liabilities, they might have left it for some of us. A member suggested reprised the ortering left it for some of us. A member suggested reprisal, the entering of the markets of the offenders and showing them how it felt to lose business to one who made nothing on it. This was looked at as very unwise and it was felt that our yearly protest like the continuous dripping of water would finally accomplish more than any

overt act we might indulge in.
"New York has noticed with interest the movement inaugurated by the National Association for the standardization of paper samples and while on this important matter would it not be in order to bring to the consideration of the mills the standardization of their bill heads or invoices. From the 11 x 8½ size of a well known Bond manufacturer to the $8\frac{1}{2} \times 7\frac{1}{4}$ there is a variety without any spice; a file cabinet or bill book which takes care of

without any spice; a file cabinet or bill book which takes care of the maximum, loses the minimum, causes delay and at times profanity. A proper standard width could be easily adopted, the length varying according to number of items billed.

"We are still suffering from the irregular contents of cases of coated paper, the 6 3/20, the 7 19/20 are daily causing the manufacturers loss in error in footing up by employees and causing an increased and unnecessary waste to the jobbers in having to remove the 3/20 to give an even amount or making for the printer an irregular output of production if we ask him for the printer an irregular output of production if we ask him to take a case. Bonds, Writings and Ledgers come in fairly even cases. Why not coated?

cases. Why not coated?
"New York Jobbers have in the main increased the volume of transacted business in the last year but while they rejoice, they note that their fixed charges and sample book expenditures have note that their fixed charges and sample book expenditures have also increased; such it was and always will be unless some system of co-operation can be created. The value of co-operation as a profit producer can be seen by the perusal of testimony before the Pujo Committee. Such Arabian Nights' wealth may not be ours as paper jobbing is a long way from banking, yet the principle is productive of results wherever tried. We have endeavored in New York to establish a mutual underwriting of floater insurance. surance.

ELECTION OF OFFICERS

On motion of Mr. Carter, the rules were suspended and the secretary directed to cast the vote of the association for the gentlemen nominated as officers. This was done and they were accordingly declared elected.

This concluded the business of the meeting and after the transaction of sundry routine work the association stood ad-

journed.

Dealers in Manila Papers Meet

A special meeting of dealers in manila paper was held at the Hotel McAlpin, New York, on February 18, 1913, being called to order by President John Leslie, after which F. W. Power, of Carter, Rice & Co., was elected chairman.

Chairman Power opened the proceedings by saying:

"On looking over the programme I see that the first order of business is the report of the standing committee on wrapping and The chairman of that committee has not yet arrived, so we will pass along to the second item, which is the report of the

standing committee on twine.

"I happen to be the chairman of that committee, and the meeting was called for 11 o'clock this morning, and I am very sorry to say there were only three attended. I think we were all of one accord that none of us were getting enough profit on our goods and I think we felt that was the greatest evil in the twine business today, outside, possibly, of direct sales by the manufactuers. We would like to have a full discussion on the subject in open meeting, and that was practically what the committee decided. If anybody can give us any light on the subject we shall be very glad to hear from them.

E. F. Evans said he had nothing important to suggest along the line of twine, further than to emphasize the necessity adopting a method of determining just what the cost of doing the

Chairman Powers asked if anybody else would like to be heard

on this subject.

M. E. Battles said it cost 16.10 per cent to sell twines out of the warehouse. That is based on the cost, not on the selling price; 6.02 per cent mill shipments, direct shipments.

Albert Diem inquired if anything has been taken up with the mill regarding net weight of package twine put up in heavy

wrappers.

In discussing the matter, Chairman Powers said:
"I do not know of anything that as been taken up that is of recent date. I think the subject was pretty well threshed out a few years ago in our section by Mr. Forsyth, who gave a great deal of time and attention to it. In Massachusetts the laws are such that it is a man's privilege, if he sees fit to do so, as far as the jobber is concerned. The Ludlow Manufacturing Company, who are manufacturers there, still continue to do business as they see fit. I believe the attention of the commissioner, has been called and his decision is that if anybody wishes to enter a complaint against them he will be very glad to take the subject up, but he does not seem to be inclined to take the initiative, so we are not accomplishing much as far as that is concerned.

Mr. Beggs joined in the discussion and said:

In regard to the cost of figuring twine, I have looked into it a little bit, and I find that our twine department in a year's business amounted to quite a large amount. At the same time they do not occupy the amount of space in our warehouse that our cheap fiber paper or any of the other class of stock we carry does, and I was just wondering in Mr. Battles' figures on the cost of doing his twine business of 16 per cent whether he took that into consideration.

Mr. Leslie asked Mr. Evans if he did not think Mr. Battles'

figures would be the figures shown by experience generally if the cost system were kept, and Mr. Evans' reply was as follows:

"I don't think that. I think there are other things that enter into it. Mr. Battles has figured his percentage of doing twine business on the shipped cost. Now you take your salesmanship cost and the same man will sell a quantity of twine on a small percentage of salesmanship, while others will sell a small quantity on a large percentage, and the one that is selling small will have to equalize the others. I know that the salesmanship expenses run from 1.79 up to 8 something. That is, the salesman himself gets that new business from 8 per cent down to 1.7, so you take those and aggregate them and apply them to the absolute cost of your administration charges, and you have a general percentage, but it would not apply to every sale that has been made in your business. It would vary, just as much as it would vary to every particular salesman you had. It gives you an average. I remember when the National Paper Trade Association sent out a request for people to send in cost of doing business. Some people sent in 18 per cent and some 4 per cent, and the executive committee added them all up and divided them by the number of replies they had and then said: 'That is the cost of doing busi-How could the 18 per cent man accept that, or how could the 4 per cent man, so it is practically the same thing we have in this 16.2 per cent. So, gentlemen, I say the only absolute way you can determine this is by figuring a cost system in your busi-ness and knowing what each individual salesman is doing. I am sure that you can analyze your business in such a simple form that you can tell just what each individual salesman is doing for you, what he is worth to you, and that is the only way, to my mind, to do business. I know all you have to contend with. We have the same thing."

Mr. Battles said in reply that the 16.2 included warehouse isiness. That is, twine that goes into the warehouse and is delivered to customers and comes out of the warehouse.

our mail business it is 8.2.

On motion of Mr. Diem the subject was referred to the standing committee and it was also ordered that there would be published in the Bulletin the names of the concerns that are allowing full tare and those that are not.

REPORT OF THE SPECIAL COMMITTEE ON BAGS

The report of the Special Committee on Bags was submitted

by A. W. Blackman as follows:
"In summing up the difficulties which confront us as jobbers, we find a woeful condition existing throughout the whole territory that is represented by the eight members on this committee, and as all of them seem to be within our own province as jobbers to remedy, we submit same for your consideration, as follows:

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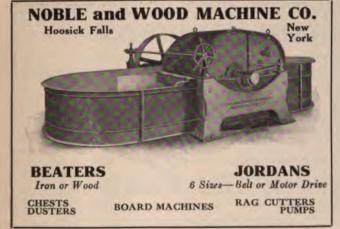
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DIGESTER LININGS Panzi Digester Lining Co., Muskegon, Mich. Stebbins Eng. & Mfg. Co., Watertown, N. Y.

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Riordon Paper Co., Montreal, Canada.

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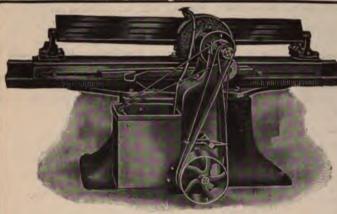
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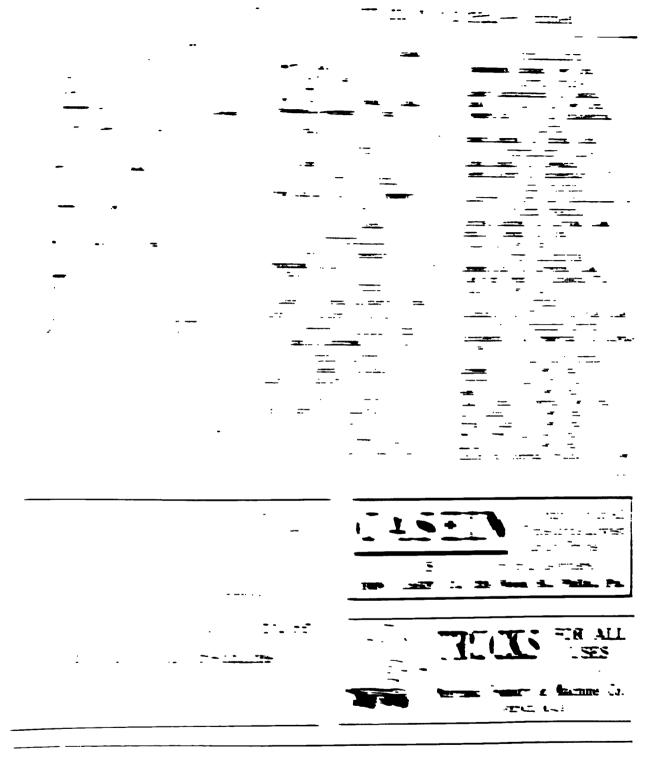
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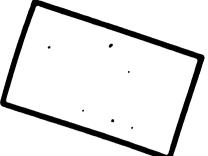
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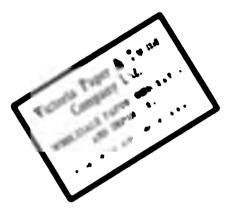
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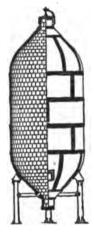
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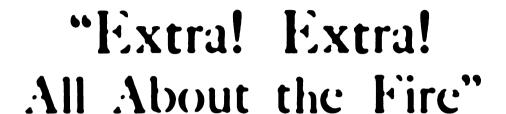
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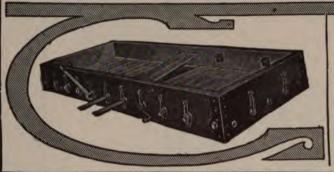
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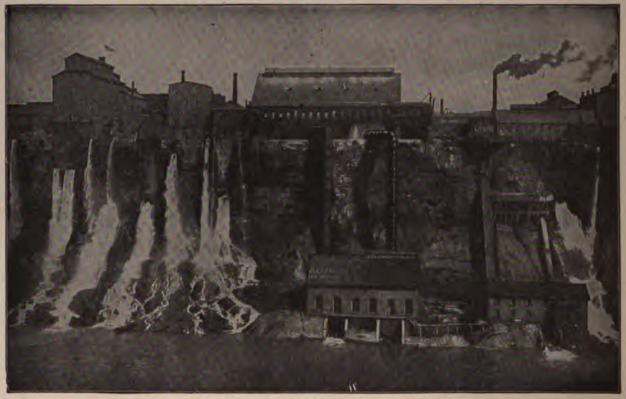
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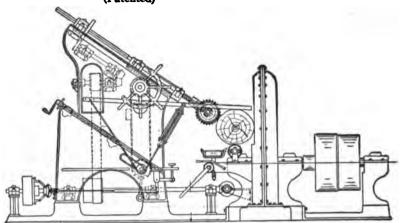
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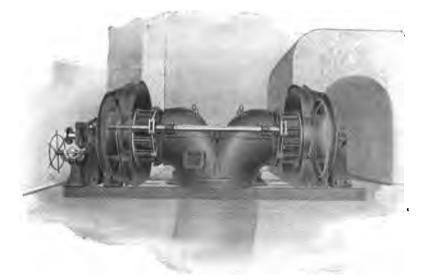


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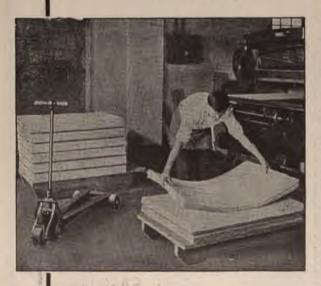
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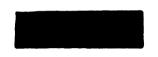
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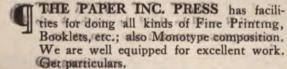
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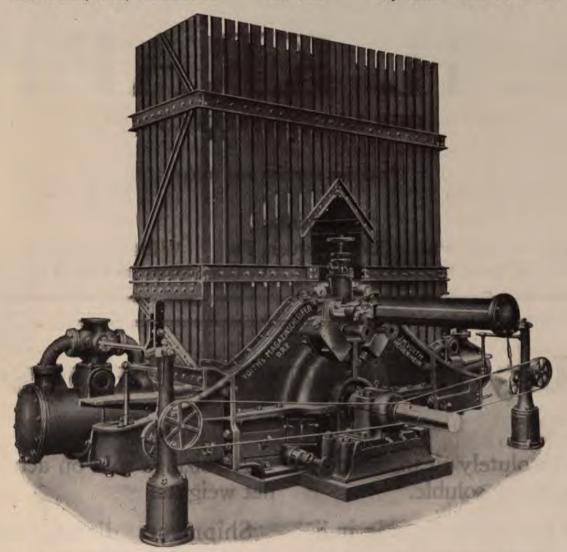
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Vol. X

MARCH 5, 1913

No. 12

Work of the German Paper Chemists

Papers read before the Association of Cellulose and Paper Chemists in Berlin



by C. A. Braun, made to the general meeting of the Verein der Zellstoff und Papier Chemiker and published in the Papier Zeitung, it is shown that the experiments made in different countries to use the cheaply obtainable red beechwood for papermaking purposes extend back to a distant period, but so

far, have not produced any results that would lead to the profitable utilization of this material. The extent to which, especially in recent times, the prices of the coniferous woods have increased, makes a means of utilizing so cheap a wood particularly desirable.

The experiments thus far undertaken may be divided into two classes: (1) those for the production from red beechwood of bleachable cellulose: (2) those for the production of fiber pulp resembling mechanical woodpulp, by grinding the raw or steamed wood. In the production of bleachable cellulose from red beechwood the solution of the considerable quantities of encrusting and especially of highly colored substances, offers material difficulties and considerable quantities of the solvent substance are required in order to produce half-way bleachable cellulose.

Further difficulties are caused by the shining brown wood particles, known as spangles, which are but slightly changed by the soda as well as by the sulphite lye and which appear in the bleached product in the form of small brownish vellow particles.

form of small, brownish yellow particles.

Unbleached beech cellulose which—especially, if produced by the sulphite process—speedly assumes, on exposure to the air, an unsightly blue-gray color, is adapted for use only in the production of low grade papers, the prices of which bear no comparison with the cost of producing beechwood cellulose.

In addition to this, the lack of rosins in the soda process greatly adds to the difficulty of recovering the salts and moreover, it cannot be denied that the necessary active chemical treatment has an injurious effect on the short fibers of the beechwood and disadvantageously affects the yield. Mechanical beechwood cellullose, made from raw or steamed wood, yields only a very short, brittle fiber pulp poorly adapted to paper or cardboard making. At the same time, the products, owing to the high specific gravity of the wood, are so incohesive that their substitution for those made from mechanical pulp of coniferous wood is not possible.

The new process devised by Dr. Braun facilitates the production, from red beechwood, of a variety of half-stuff, in which only enough of the encrusting substance is dissolved to make the specific gravity of the fibrous mass not higher, but rather somewhat lower than that of brown mechanical woodpulp. By means of a suitable composition of lye and management of the boiling process, this can be accomplished without difficulty.

The boiled stuff is thereby only so far softened as to permit of easy grinding, so that the short and fine fibers are protected. The working process is quite simple and

on a large scale is easily carried out.

The wood, reduced in the familiar manner, is treated for about six hours, in a digester, under pressure, at 150° with a lye of a certain composition, then the digester is blown off, the boiled substance and lye discharged and after thorough washing treated in the edge-mill or disintegrator.

The hollander, in cellulose thus prepared, has hardly any grinding work to do, only to break open and extend the fibers. The yield amounts, in round figures, to 450 kilos to the solid meter of air-dried beechwood; the cost of chemicals to 55 to 60 pfennigs (13¾ to 15 cents U. S.) to 100 kilos of stuff. If the boiling process is properly conducted, the boiled product assumes an agreeable brown color, which is permanent.

As no chemicals are to be recovered, all the de-

vices for this purpose are eliminated.

With the addition of long fiber pulp, this beechwood half-stuff—which responds to the familiar woodpulp reagents—can very well be worked up into paper and cardboard. Thus the brown packing, smoothed on one side, made in Horka paper mill, Hungary, contains in round figures, 22 per cent IIIa needlewood cellulose.

The introduction of this process, which is the subject

of an application for a patent and has been pronounced "new" by the examiner, would, it is said, probably greatly reduce the consumption of cone-bearing woods.

President Max Müller, in his address "On Colored Waste Waters from Paper Machines"; stated that the processes of Dr. P. Rohland, of Stuttgart, for removing the color from the waste waters of paper manufacture were unsuitable because large quantities of clay were used, and they took a very long time to settle. He had had better results, he said, with Hoyermann-Wellensiek's humin substance, which is obtained by treating lignite or peat with alkalis. The humin solution is added to the waste water in drops, and reprecipitated with caustic lime. Black waste water was excellently clarified in this manner, but scarlet water only with a moderate degree of success.

Professor Schwalbe stated that very intensely colored water was clarified in the dyeing industry by filtration

through lignite slag.

Herr Willi Schacht reported on a paper mill in which the waste water had been successfully decolorised by Stevens on "The Determination of Manila Fibers by Means of Stigmata."

These so called stigmata or silicious plates are illustrated in Hanausek's "Microskopie technischer Produkte." They can be seen by saturating manila hemp, or paper made from such, with nitric acid, then gradually evaporating the acid, and then incinerating the product. A few drops of weak nitric acid (1 part strong acid and 9 parts water) are then added, when most of the ash disappears, the stigmata remaining behind unchanged and being readily discernible under the microscope. They consist of small plates usually having in the middle a crater-like depression, and partly connected together like a chain. These bodies are present in no other fibers used in paper manufacture, and may therefore advantageously serve as a proof that manila exists in the paper. (See Figs. 1 and 2.)

Following this address was a paper by R. Eichmann, on "The Calculation of Rag Half-stuff."

Herr Eichmann pointed out that when calculating prime costs, those for power and for heat consumption



Fig. 1—CHAIN STIGMATA OF BROWN MANILA HEMP



Fig. 2—ISOLATED STIGMATA OF MANILA HEMP

colloidal clay, and on a sugar refinery which had also adopted Rohland's process. For this purpose only very specially plastic clays could be employed.

President Müller declared that in his experiments he had used c ays recommended for the purpose by Rohland. The proposed alternative method of employing sulphurous acid or chloride of lime mud was to be condemned in his opinion because, although the water is decolorised, deleterious materials are introduced. It is better to employ at the beginning dyeing substances which give as colorless a waste water as possible.

Professor Schwalbe reported on "The Effect of Metals on Sulphite Digestion," following the reading of President Müller's paper.

He said that when small experimental bronze digesters were employed, the upper layers of the wood were colored brown, and it was determined that the drip water, which collected on the cover, was the cause, as it contained copper. One could conceive cases wherein such an admixture of copper in the lye might in large plants cause serious trouble, in consequence of a catalytic decomposition of the lye.

Herr Ferenczi then brought to the notice of the meeting the published report of Clayton Beadle and

should not be combined in the general costs, but be calculated separately for each kind of half-stuff. The reader of the paper dealt thoroughly with his subject by giving an abundance of figures, and at the conclusion gave a short description of his half-stuff plant.

Dr. Ing. E. Mysz, of Berlin, then read a paper on "The Steam Turbine in Cellulose and Paper Manufacturing," being a resumé of the development of the A. E. G. turbo-dynamo. The subject was demonstrated with the aid of lantern-views. The reaction turbine is to be recommended only in places where the quantity of exhaust steam exactly coincides with the quantity of heating steam. This scarcely ever holds good in the manufacture of chemical pulp or paper. In such cases only the so called tap-off turbine can be considered, because this permits of the abstraction of heating steam within rather wider limits. If however, the heating steam abstracted falls below a certain proportion of the total steam consumption, the tap-off turbine becomes no longer economical, and a separate generator for the heating steam is preferable.

The largest withdrawal of heating steam from a tapoff turbine is double that of the intermediate steam in a cylinder engine of the same output. When heating steam of various pressures is required, the turbine will

Continued on page 34

New Materials for Papermaking

A Review of Fibers Under Consideration—The Advantages of Hedychium and Bamboo



T the meeting of the Royal Society of Arts (London), held February 12, a most interesting report on "New Sources of Supply for the Manufacture of Paper," was made by Clayton Beadle and Henry P. Stevens, M. A., Ph. D., F. I. C. The subject was illustrated by lantern slides and specimens of fibers and other papermaking ma-

terials, and various samples of paper made from bamboo and different pulps were shown for explanatory purposes. We take the following report of the meeting from our London contemporary, the World's Paper Trade Review:

In the course of the paper Mr. Beadle said that those whose business it is to provide material for the manufacture of paper have exercised all their ingenuities in the direction of increasing the output of woodpulp by putting down fresh mills in different parts of the world where pulpwood can be rendered available. This work has for a time overshadowed and stifled all attempts to introduce other papermaking materials. As evidence of the position which woodpulp now occupies in relation to papermaking, one has only to call to mind the power and importance of the British Wood Pulp Association, and similar woodpulp associations in other parts of the world. No similar associations exist as representatives of the other raw materials used in the manufacture of paper. In fact, the Wood Pulp Association is as important and powerful as the Papermakers' Association, which is practically its sole cus-

In spite of the fact that other materials have been used for centuries, wood has entirely outstripped them all, and now constitutes the great bulk of the material used in the manufacture of paper. For many years, and as long as woodpulp appeared to be sufficient to meet the demands put upon it, little or no attempt was made in other directions in the way of investigating further raw materials. This was in the opinion of the authors, due to the fact that papermakers had, up till recently, taken it for granted that the supplies of pulpwood were inexhaustible. Now the paper trade is waking up to the fact that pulpwood is getting scarce, and prices are rising in consequence. In their opinion, the ultimate salvation to the paper trade in years to come against undue inflation of prices will be in the direction of adopting other materials to supplement woodpulp.

It will be seen that history repeats itself. About half a century ago the supply of rags became so low, and the price, as a consequence, so high, that paper manufacturers were forced to find new materials as a basis of the further development of their industry. In this extremity esparto grass and certain woods—notably, spruce and poplar—were found to produce excellent paper fiber. The enormous expansion in the use of paper since that time has now brought us face to face with a dearth of suitable wood. The price of spruce at the mill has risen from a few dollars a cord to \$6 and \$11, and in some cases even to \$12 a cord, according to location and cost of delivery. Poplar, likewise, has arisen from a comparatively low price until now it is, perhaps, worth on an average \$7.50 per cord, delivered.

U. S. A. official reports go so far as to declare that practically all the trees producing the highest class of materials on many pulp-yielding areas have been cut, so that the present harvest is from less desirable and more scattered stands, which means reduced yields of fiber in raw material and an increased cost in securing the wood.

While the price of wood in the States has continually advanced as the supplies grew smaller, the supply of crop by-products has gone on increasing with practically no increase in price, but with little likelihood of any considerable increase in the future. In consequence of the rapid development of the papermaking industry in practically all parts of the civilised world, we have for some years been faced with the fact that the available pulpwood for the manufacture of woodpulp is, therefore, showing ominous signs of exhaustion. This is reflected in the increase in the price of raw wood. This state of affairs, has, during the last few years, stimulated a good deal of research and investigation, by public institutions as well as by private individuals, for and on behalf of the paper trade, in order to see whether some other extensive sources of supply cannot be found.

It was the intention of the authors to briefly refer to one or two recent attempts made to introduce other materials, but it would be quite impossible within the space of this short paper to enumerate them all. As might well be imagined, hundreds of different vegetable fibers have been from time to time suggested, and many of them tried, but the great bulk of them have, for varied and obvious reasons, shown little or no prospect of commercial success. Mr. Beadle then presented some official statistics bearing on the advance in the price of pulpwood, following up with a reference to the attempts made to utilise waste woods and new kinds of wood. Attention was next given to bamboo, cottonseed cotton, bagasse, and hedychium coronarium, the latter being exhaustively treated.

One of the interesting and instructive tables included in the paper is reproduced herewith. This table is intended to give details of certain materials which show possibilities of coming into use in the future. There are other materials, such as "sudd," which have not been included. They have all been tried commercially, some of them are already extensively and regularly used. These particulars comprise acreage, yield per acre, the possible aggregate amount available in the form of raw fiber, and certain other partiticulars, with a final column intended to give some idea of the aggregate amount of bleached pulp producible. The materials Nos. 1 to 8 are capable of cropping once a year, 9 and 10 every five years, and 11 about every 40 years. Over 100,000,000 acres are devoted to Indian corn in the United States, but only that portion within the "corn belt" area is taken as likely to be available. The acreage under broom corn is taken from the returns given in the Twelfth Census report, the figures for rice straw from that harvested in With flax straw a deduction of 500,000 acres is made from the total under flax in the United States for that already consumed.

The figure for cotton-hull fiber, that is cotton seed cotton, is arrived at from carefully prepared estimates

4

TABLE PHOWING MATERIALS THAT MIGHT BECOME AVAILABLE FOR THE MANUFACTURE OF PAPER

	Acres under cultivation.	Tons per acre per annum of dry raw material.	Tons of raw fiber per annum on total area	Percentage yield of pulp on dry raw material.	Tons of pulp per acre per annum.	Tons of pulp per annum on total area.
Cropped once a year.			•			
1. Corn stalks	. 30,000,000	1.0	30,000,000	1 2 –18	0.12	3,600,000
2. Broom corn	178,584	3.0	450,000	32-4 0	1.00	150,000
3. Rice-straw	720,000	2 9.0	1,500,000	35	0.70	500,000
4. Flax-straw	2,000,000	1.0	2,000,000	30	0.30	600,000
5. Cotton-hull fibers	· <u></u>		150,000	75		112,000
6. Cotton stalks	10,000,000	0.45	4,500,000	35-40	0.15	1,500,000
7. Hemp-straw	· —	5.0	· —	20	1.00	· —
8. Hedychium		6–10	_	60	4.00	_
9. Bamboo (Pearson, Sindall)	¹⁵ /g		-	45	1.35	_
0. Bamboo (Pearson, Raitt) Cropped every 40 years.	8/5 to 18/5 16 Cords		_	45	} to 1.57	_
1. Pulpwood	40	40	_	45	0.20	

made by E. C. de Segundo, President of the American Cotton Hull and Fiber Co., and this after making numerous deductions for that which is already used for other purposes and that which may not be available for geographical and other reasons. Furthermore, it includes nothing outside U. S. A. The figures give for cotton stalks are taken from official reports. Hemp is inserted as being a possible material that might be cultivated for the purpose of the manufacture of paper. Hedychium is inserted by way of comparison.

For bamboo the authors have taken the crop per acre as given by Sindall, but have adopted five years as being the average period of cropping as arrived at by the careful investigations made by R. S. Pearson of the Indian Forest Service, Official Forest Economist to the Government of India, and the authors also give another estimate for bamboo as an average of figures given by Raitt at Pearson's average of five years per cropping.

Finally, the authors give by way of comparison, figures for pulpwood arrived at as the result of a paper read by Parker Smith before the British Papermakers' Association, 1910, equivalent to 16 cords per acre, which, at 2½ cords per ton of sulphite pulp at forty years' growth, is equal to a yield of 0.20 tons=4 cwt. per acre per annum. Although this figure is on a 16-cord basis, it must not be overlooked that 10 cords is by many considered to be an average figure.

The authors wish particularly to draw attention to the fifth column, where it will be noticed that, with the exception of cornstalks, an average land under pulpwood would yield less pulp per acre per annum than any one of the other materials given in the table. The highest yield of all per acre per annum is given by Hedychium, after which follows bamboo. They particularly direct attention to this table in order that those who are interested in the paper trade may reflect upon the possibilities of materials other than wood as sources of supply for the future.

In the discussion that followed the reading of the paper the chairman said the authors of the paper had set forth a very important piece of industrial perspective. They had listened with a great deal of pleasure and considerable attention to what had been a difficult task, viz., to give an attractive exposé on subjects representing many months of diligent and difficult hard work, such as the authors of the paper had been engaged in. There was little to add to their sectional points. Those who were not papermakers or fiber experts could not appreciate the full practical significance of their statistical and other information. There was an expert grasp and a general grasp to be found present in an audience of a mixed character, and

undoubtedly there were some who understood the subject as much as the authors of the paper. But he might clear up one point by reminding the general reader that cotton was a raw material by itself and for highclass papers, and that the short cotton hull fiber was a potential supply for such papers.

For the general advantage of the audience, he would like to mention in this connection an industrial movement of considerable potential importance, and that was the general exploitation of useful products elaborated by the plant Cryptostegia grandiflora. The plant was one of the Asclepiads and secreted a rubber-yielding latex and, in addition, elaborated a bast fiber of exceptional properties as a cellulose. It was of "A," or cotton class in chemical constitution and in length. The plant was of extraordinary vigor and required little soil nourishment, growing 15 feet from seed in one year. With 5,000 plants to the acre, cultivated after the manner of hops, the agricultural balance-sheet was a very favorable one. The matter was in the hands of an Anglo-American Syndicate, under the headship of Professor Charles S. Dolley.

They ought also to mention a very massive fiber supply in the *Cyprus papyrus*, or Nile sudd. The exploitation of this colossal supply was in very capable hands, and the developments of the Anglo-Egyptian Suddite Co. were approaching the "Serione" phase. On the authors' general perspective they might be allowed to point certain conclusions, not quite obvious to the general observer.

Man was a hopeless prodigal in squandering his industrial resources without any regard to the present or to the future. On the other hand, nature was the infinitely laborious and painstaking economist. The papermaking perspective was an apposite illustration. The forest tree of thirty or forty years' growth was cut down and made into pulp, and this was mixed with clay to produce paper for a paper like the Daily Mail. That of course was inverted economy—their ephemeral literature appropriating a substance which was the very type of perennial continuity.

There was a contrast equally paradoxical presented by the cotton fiber, which from its function as a seed hair would appear to belong to the most perishable of structures, and was, moreover, the product of an annal growth, notwithstanding which it was to the chemist, the very type of stability of organic substance. Notwithstanding this double moral claim to utilisation, cotton hull fiber was disposed of uselessly, to the extent perhaps of a quarter-of-a-million tons annually. Their illustrations were really the centre of the whole matter. The authors were moralists, insisting very rightly that to spend capital, when we could live on income, was of course the short description of the prodigal. Crop plants were income; perennials were capital in a special sense.

One other point in conclusion, for the benefit of those who, like himself, were interested in the broader views of industrial science. He strongly advised them to read the illuminating address of Professor G. Lincoln Goodale, when Professor of Botany at the University of Harvard, on "Useful plants of the future; some of the possibilities of economic Botany—American Association, Washington, 1891, Vol. 40." The address had always struck him as a most illuminating revelation of what one must call the individuality of the plant world. Thus, with all the potentialities of competitive supply, we had very few species yielding us economic products, not 1 per cent of the named varieties of plants being put under contribution for human requirements. The fiber-yielding plants were no exception, and in spite of diversified efforts of cultivation outside the staple products, they could not claim to add more than one to the list in each generation. "We commend this as an interesting fact," added the chairman," and refer to Professor Goodale to supply the reasons."

John Christie, of Ide & Christie, who also discussed the paper, said he had listened to it with great pleasure. They had had an excellent resume of possible new raw materials and they had imparted to them a great deal of information which hitherto had not been touched upon in regard to certain fibers. As regards woodpulp, he cordially endorsed the remarks of the chairman from the sentimental point of view of cutting down forest trees. But someone said the other day: "Forests fell that journalists might live." He also agreed with Mr. Beadle in regard to bamboo. If bamboo was to come forward as a papermaking material it must be in a condition of attaining a high and pure color. It had great advantages, and, being a wild product, there was

an excellent supply as a raw material.

In conclusion, Mr. Christie dealt with the destruction of the roots of esparto grass which were pulled up frequently, instead of cultivating them, and if this state of affairs should continue he feared that the results would not be very satisfactory. Having dealt with Hedychium coronarium from a botanical and technical point

of view, Mr. Christie said it would be interesting to know whether the peculiarity of the parenchyma cells in the case of the hedychium and the sugar cane—entirely different plants—was not also to be found in every monocotyledonous plant. Experiments also might, he thought, be made with sisal waste, obtained by scraping and the manila waste. He did not regard 30,000 tons of paper from hedychium as a very material

addition to the world's production, and the figures of 100,000 tons, also mentioned, must depend upon the area over which the plant could spread. He again expressed his pleasure with the authors' paper.

expressed his pleasure with the authors' paper.

Edward C. de Segundo said the paper represented weeks and months of research work and they were very grateful to the authors on showing such good results. Papermakers, he thought, might well drop their rule of thumb methods and go in for such work as Mr. Beadle had shown in the paper. Such work would be invaluable in furthering the interests of papermaking as a science. The speaker went on to refer to cotton hull fiber, and said it must not be forgotten that paper made from it had achieved success. A paper could be produced which might well serve as a substitute for certain forms of parchment paper, while, with still more protracted treatment, it was found on drying out, that a material resulted which was as hard as celluloid and non-inflammable. After commenting on the use of

rags in paper manufacture and their great value as a raw material, Mr. Segundo complimented Mr. Beadle on his reference to the utilisation of waste products. It was one of great importance, he added, and he considered that Mr. Beadle did a great deal in bringing to their notice the various sources that were running to

More on the Manufacture of Filter Paper

In reprinting from Paper of January 1, 1913, the interesting article by Gustav Fornstedt on "The Manufacture of Swedish Filter Paper," a writer in our Paris contemporary, La Papeterie, of Jan. 25, 1913, appends the following "note":

Besides the filter paper sold in reams or in round or square sheets, there are made in some mills, tubes of filter paper, closed at the lower end by a cap and thus displaying exactly the form of a test tube. These special filters are used for the extraction of fatty and resinous substances, etc., by the Soxhlet apparatus.

Some French and foreign mills make a cake-like mass of cotton half stuff, commercially known as "filter mass." This substance is used in the filter press and teased out and "placed by the users in the cells of the

apparatus.

In the manufacture of certain filter papers, intended for chemical analysis or pharmaceutrical purposes, new white cuttings are used which are freed from starch and other finishing substances, either by steeping or malting, but which are not bleached by chemical means, contamination by chlorine being consequently obviated.

Filter paper, in addition to that manufactured on the machine and by hand, is also made in circular sheets

in imitation of hand made paper.

Mr. Fornstedt indicates in his article that incineration in the ash examination should be continued until a dazzling whiteness is obtained. This method is not to be recommended for all incinerations, for at this temperature the volatilization of chlorides and other components may occur. A light red is usually sufficient to ensure complete combusion.

We recall that the exsiccator, of which the author speaks is an apparatus devised to permit the cooling of the paper or the ashes, without the absorption of moisture, which unavoidably takes place in the open air.

An exsiccator consists fundamentally of a bell of glass, the lower edge of which is ground to make close contact with a heavy glass plate. This edge is moreover coated with paraffin to prevent any possible access of air. Under the bell is to be found a receptacle containing either dried chloride of calcium or concentrated sulphuric acid, or pumice stone saturated with sulphuric acid, all substances that greedily absorb the slightest traces of moisture. The crucible containing the paper or the dried ashes, can thus be cooled and at the same time kept absolutely dry.

This method of cooling should be resorted to on every occasion when a test involving precise dessication is to be conducted. Moreover, the crucible must be transferred very quickly from the exsiccator to the balance, to avoid absorption of moisture from the air. Finally, the case holding the balance must contain a dry atmosphere. For this purpose and also to avoid rust on the parts of balances the case enclosing them should contain a receptacle filled with dried

chloride of calcium.

For every 2 lb. of paper made 68 gallons of water are used.

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No. 12

Pulpwood Freight Rate Decision

THE 'controversy concerning the proposed advance of the freight rate on pulpwood shipped from Canada over certain railroads to mills located in this country was passed upon by the Board of Railway Commissioners for Canada on February 26, 1913. The decision, to which one of the commissioners dissented, allows the proposed advances to be made, but defers the date of their effectiveness until August 15, 1913.

It will be remembered, as heretofore announced, that a number of our American manufacturers who were affected by this advance, entered protest some months ago when the increase was first announced. Since that time, through a committee appointed for the purpose, hearings have been held and arguments advanced on behalf of both the railroads and the protesting manufacturers.

The evidence introduced at these hearings, so far as we have been able to review it, certainly does not justify the action taken by the roads; and it was our hope that the railway commission would hold to this view.

It is disappointing that the decision has been adverse to the American manufacturer of paper; but he has become accustomed to rulings against his interest.

The committee in charge of the fight certainly gave the matter very intelligent and energetic attention, and although the rates ultimately become effective, something at least was gained in deferring the date of advance. The contest will have held up the increase about eighteen months when August 15 arrives.

We assume that the fight is not yet ended, and that either this same committee or some other one will be authorized to pursue the matter further, endeavoring to have some action taken on this side the international line to prevent this indirect levying of an export tax on the shipment of pulpwood into the United States.

The railroads, it must be admitted, have shown more patriotism than some of our own people are disposed to indulge. Their action is in direct line with the Canadian policy of encouraging the growth of the paper industry in that country and putting every possible obstacle in the way of the transportation of raw material to the American mills.

We have yet every reason to believe that some action may be taken later by our American roads or American officials that will counteract the effect of this decision.

Railroads and Hotels

THE transportation rates fixed by the railroads and the accommodation rates fixed by the Washington hotels for the crowds visiting that city to witness the inauguration proceedings suggest a practice that appears to be somewhat inconsistent, but one which ordinarily prevails whenever an unusual number of people gather at any particular place. In such cases, the first thing the hotels do is to double their rates, while on the other hand, railroads are expected, if not actually required, to cut theirs in half. Thus without any gain to the public, which loses on the hotel what it saves on the railroad, special profits are provided for the former, while the latter gain little or nothing.

We don't happen to own any railroads or hotels, therefore it may be said that these matters are not within the province of our criticism. It is a fact, however, that all manufacturers have an indirect interest.

The operation of our railroads calls for a certain amount of revenue which, if it cannot be procured from one source, must come from another; and we have all had it demonstrated time and again that where any one department of railroad operations fails to yield a revenue or is conducted at a loss, it means the advance of rates in other directions.

We see no reason why the passenger service of our railroads should not be required to bear its just proportion of the expense necessary for maintenance and operation. The transportation of freight might very properly be called a necessity, whereas the carrying of passengers on special occasions, for the purpose of sightseeing and gratifying idle curiosity, is more in the nature of a luxury. If, therefore, our railroads would charge reasonable rates for passenger service, making them apply to everybody on every occasion, fixed upon a basis that would yield a proper income, it might to some extent relieve the necessity of increasing freight rates from time to time, as has been done in the past, to meet increasing expenditures, and in the end it would. in our opinion, result in a more equitable distribution of the burden of transportation costy GOGIC

The New Administration

A T the time of this writing, the control of the affairs of our national government is not only passing into the hands of new men, but into a different party.

Naturally a change of so much importance is the occasion of very great solicitude on the part of all our people. Some are more than ordinarily elated, others correspondingly depressed and fearful.

We venture to predict, however, that we shall not have gone far until it will be discovered that our expectations have all been exaggerated and the acuteness of both our hopes and our fears will be materially diminished.

Members of the party which was successful at the last election will find that they have overestimated the advantages of their triumph, while those who were defeated will just as surely conclude that they have magnified the perils of their failure.

It is human nature to overestimate the significance of important events at the time of their occurrence. The chances are that in a general way we shall all shortly become accustomed to the new conditions and find our part of the world moving along just about as it has always done.

This country is too big and too great to be materially quickened in its pace or for any considerable period halted in its march toward the ultimate end that awaits it by the legislative enactment of any political party or the official policy of any individual.

Unless changes should be made at the last moment, the new Cabinet under President Wilson will be constituted as follows:

Secretary of State, William J. Bryan, of Nebraska. Secretary of the Treasury, William G. McAdoo, of New York.

Secretary of War, Lindley M. Garrison, of New Jersey.

Attorney General, James C. McReynolds, of Tennessee.

Postmaster General, Albert S. Burleson, of Texas. Secretary of the Navy, Josephus Daniels, of North Carolina.

Secretary of the Interior, Franklin K. Lane, of California.

Secretary of Agriculture David F. Houston, of Missouri.

Secretary of Commerce, William C. Redfield, of New York.

Secretary of Labor, William B. Wilson, of Pennsylvania.

Some of the men whose names are included in this list are unknown quantities in public life. To the extent, however, that they are known, there is no reason apparent for the prophecy of disaster on account of their connection with the important branches of the government. Some of the selections appear to be admirable. On the whole, it is a Cabinet which at first view appears to be more encouraging than otherwise.

Because the government at Washington is the government of all our people; because the protection of our persons and our property and the comfort and happiness of all are dependent upon good government, every good citizen will join in the sincere hope that the new administration will be marked with a wisdom and fidelity such as shall guarantee the peace and prosperity of all the land.

Recent Rulings on Canadian Importations

ELSEWHERE in this issue of PAPER will be found the full text of a ruling handed down by the Secretary of the Treasury on February 24, 1913, respecting the admission of wood, pulp and paper brought from Canada under the provision of Section 2.

It will be observed that this modification of the former ruling, promulgated under date of July 26, 1911, is intended to require that more specific information be given concerning the character of the articles imported, as well as more definite data relating to their manufacture, including particulars pertaining to the source of the wood or pulp under consideration.

The declaration endorsed on the invoice will now require the name of the manufacturer, the place of manufacture, the name of the province in which the wood was grown, with respective percentages of Crown and private land wood entering into the production of the articles, and whether any wood or pulp foreign to Canada has been used.

Where the article imported is admittedly composed of a mixture of two classes of pulp, that made from wood grown on Crown lands and that from freehold lands, we are unable to see how the manufacturer or anybody else is able to determine the percentage of each entering into any particular shipment; nor can we understand why the government, in relation to pulp and paper, should depart from its usual rule in fixing its regulations concerning the assessments of duties upon importations. The ordinary practice is to levy upon the entire article imported the rate applicable to that constituent portion taking the highest tariff; and where certain portions of the article, if coming in independently, would be entitled to free entry, they are nevertheless assessed a duty when combined in the same article with a dutiable component.

In this case, as in many others, pulp and paper are given special and exceptional treatment, and where the exception is made, it is invariably against the interest of the American producer, instead of being in his favor.

Any practical papermaker knows very well that in filling an order, it is not the practice of the mill to take a fixed amount of rawmaterial and follow that through to the finished product without its becoming to some extent mixed in the processes of manufacture with the materials that enter into the filling of other orders. If, on a particular day, 100 cords of wood should be consumed at a plant, 50 per cent of it cut from Crown lands and 50 per cent from freehold lands, it does not follow at all that the pulp or paper produced immediately afterwards would all contain the same proportions of the wood consumed. Why then should not the government adopt in connection with these importations the same rule as it does in reference to other commodities, that of assessing a duty upon the entire shipment where it is shown that any portion of it is dutiable.

THE WEEK'S LATEST TRADE NEWS

International Freight Rates on Pulpwood

Decision of the Canadian Railroad Commission Adverse to American Interests

[SPECIAL TO PAPER]

7ITH the decision of the Canadian Railroad Commission a few days ago allowing the Canadian Rauroad Commission a few days ago allowing the Canadian Pacific, Grand Trunk, Canadian Northern and N. R. Q. railroads to increase their freight rates on Canadian pulpwood for delivery at the Carthage, Canton and Fort Edward districts in this state, another body blow has been struck the newsprint mills of Northern New York and about fifty mills will be affected. Under the decision the new rate will go into effect August 15, 1913, but the manufacturers of Northern New York propose to continue the fight, which they have waged for the past two years, to the bitter end and if possible have the decision reversed.

The hearing took place before the Board of Railway Commissioners for Canada, on complaint of the International Paper Company et al. vs. Canadian Pacific Railway Company et al. The text of the majority judgment, written by Chief Commissioner Drayton and concurred in by Assistant Chief Commissioner Scott and Commissioners Mills and Goodrie, is as

follows:

"On the 19th of August, 1912, the International Paper Company of New York, and others, applied to the Board for an order pursuant to sections 26 and 323 of the Railway Act, disallowing certain joint tariffs purposing to increase the through rates on pulpwood from shipping points in Eastern Canada to manufacturing points in the Eastern States of the Union, which the Grand Trunk, Canadian Pacific, Canadian Northern Ontario, and Temiscouata Railway Companies had filed to take effect September 2, 1912; and, on the 29th August, John C. Came & Soptember 2, 1912; and, on the 29th August, John C. Came & Son, Quebec, and a number of other Canadian producers and shippers joined in the application. On September 1, the companies issued notices postponing the effective dates of these tariffs until November 1, 1912. Following the hearing of the application at Ottawa on the 15th October, by order No. 17,826, the board suspended the schedules until February 4, 1913. for the purpose of enabling the board to consider the evidence submitted, and the written arguments to be filed; and, by order No. 18,577 of the 27th January, the suspension was extended to March 1, proximo. The matter is now ripe for adjudication.

"The complainants' chief contentions are—
"1. The plea of the railway companies that their present

tariffs are the developed product of water competition is dis-

proved by the tariff record itself.

"2. The continuance of the rates since 1903, is presumptive evidence that the companies have considered them reasonably profitable, and disproves the contention that the traffic has not borne its proper share of the increased cost of railway operation, and are therefore too low.

"3. The proper comparison of the local rates to the Canadian

mills is with the through rates to the American mills and not

with the proportions accruing to the Canadian carriers.

"4. The Canadian proportions of the proposed rates would

be greater than the local rates to the points of connection with

the United States railways.
"Taking these in their order: The representatives of the railway companies maintained that their tariffs were constructed on the basis of water competition. Whatever the charges by the water channels may have been, it is reasonable to assume that the companies so framed their tariffs as to secure to the rails at least a full share of the traffic tributary to the rivers. If, by reason of greater density of traffic and higher working expenses, they now pay less regard to the water competition on this traffic, that is another matter. The Canadian Pacific North Shore main line closely follows the St. Lawrence and taps its feeders, and the blanketing of that company's rates would, in the ordinary course, dictate a similar policy to the Grand Trunk on the South side, and the branch line rates would, on general principles, be proportioned thereto. The grouping of the inland mills of Jefferson County, N. Y., with those accessible to the water carriers via Sacketts Harbor is merely an illustration of railway practice where long hauls are concerned.
"In a communication from three of the applicant firms ad-

dressed to the railway traffic officers, and dated July 13, 1912, it is admitted that the 'element of water competition was probably the controlling reason for the establishment of the line of rates typified by 8 cents from Levis to Fort Edward.' They also say,

'the traffic, which was then small, and originated probably in the trame, which was then small, and originated probably in a large degree at the river landings where the element of water competition was most severe, now runs to heavy proportions, and originates at all Canadian points of origin in the St. Lawrence and tributary valleys covered by the highly important line of rates already cited.'

"A fact that seems to have been overlooked is that in the

earlier years of these tariffs the home consumption of pulpwood

was small compared with what it is to-day.

"2. This presumption is clearly subject to the qualification that operating costs have maintained some measure of equilibrium, or have not materially advanced. It was stated on behalf of the carriers, that their records were not so kept as to admit of the carriers, that their records were not so kept as to admit of the segregation of the cost of handling this particular traffic; but, notwithstanding more efficient facilities, it has been fairly established from time to time that the expenses of conducting transportation, following the universal tendency, have increased considerably during the past few years.

"3 and 4. This argument ignores the conditional character of the rates of the local mills. Under ordinary circumstances,

pulpwood would take the same local rates as other rough forest products; and with the assurance of the second haul of the pulp or paper products, the rates on the raw material have been reduced to a lower average even than for firewood. Whether the local rates of the Canadian companies are specificially conditioned on re-shipment of the products, as the Canadian Pacific's are and the Grand Trunk's are not, is immaterial, since pulpwood is used for no other purpose than for manufacturing, and the consumption of paper from rail-hauled wood at the points of consumption of paper from rail-hauled wood at the points of manufacture is small. This compensatory second haul, which is lost in the case of the through shipments, is, in my view, a governing factor in the case, and makes unnecessary any minute consideration of operating costs. Under the existing schedules, the proportions accruing to the Canadian companies from the through shipments rule lower than the rate paid by the Canadian manufacturers; and if, as proposed, they will average higher, the difference is much too slight, to counter-balance the loss of the second hault and they will still yield a much lower total reserves. second haul; and they will still yield a much lower total revenue than the companies would receive, were the wood manufactured along their own lines. Apart from the second haul consideration, under the conditions of joint services and apportionment of the through rates between two or three, and, in some cases, four carriers, it is reasonable that the joint through rates should be on a higher basis than for similar distances on the line of a single company. Any comparison of these through rates with the local rates in Wisconsin seems to be open to the same objection as in this case. Counsel for applicants, in his argument, has misunderstood a reply of Mr. Kirkpatrick of the Canadian Pacific Railway Company at page 10031 of the proceedings, regarding grinding in transit: Witness distinctly said: 'It is a question of the rate in and the rate out.'

"This principle, that is, the right of the carrier to consider the resultant traffic as a reason for a lower rate on the original comresultant traffic as a reason for a lower rate on the original commodity where drawn to points of manufacture on the carrier's line, is well established by the judgment of the Board in Michigan Sugar Co. vs. Chatham, Wallaceburg, & Lake Erie Railroad Co., Canadian Railway Cases, Vol. XI, page 353. There are, of course, objections to the principle. It may well be that the original shippers should obtain, in all instances, the same rates on the rough commodity; but it is impossible to discontinue the application of the principle in this case without a complete revision of existing tariffs, which have been, in many cases built

application of the principle in this case without a complete revision of existing tariffs, which have been, in many cases built up entirely having regard to it.

"The proposed through rates are not attacked as unreasonable per se. They are lower than the through rates between the same points on other rough forest products, which are usually classed together, and into the rating of which relative values do not enter As these have been in force for some time and have not been the subject of complaint, they may fairly be assumed to be reasonable, therefore, the disputed rates on this particular forest product

may fairly be considered reasonable also.

The consideration of the rates on other rough forest products shows very strongly that the former pulpwood rates were put in force with a view to stimulating a comparatively new business

largely irrespective of resultant profit to the railway company, or that the rates were the result of other and outside considerations pressed upon the railways, having to do, perhaps, with their American connections.

'Under the caption of 'lumber', among other rough products,

the following commodities moved: Bark, bolts, and billets, hoop and hop poles, and fence-posts and rails.

"There can be no reason why, apart from some special or extraordinary circumstances these rough forest products should not get at least as good rates as pulpwood; yet, with the proposed increase, the rates that forest products, other than pulpwood, take to Fort Edward, N. Y., are as follows:

From	Forest Products	Pulpwood
Batiscan	14c	10c
Three Rivers	13c	9c
Nomining	14c	10½c
Maniwaki	15c	12½c
Point Levi)		, -
Lyster and }	14c	9c
Danville		

"It is to be borne in mind that pulpwood would move under the lumber commodity tariff, which includes the rough forest products, if it had not been for the special rates previously put in force; and it is somewhat difficult to see that there should be such a distinction made in favor of pulpwood as against these other

commodities.

"The effect of the proposed increases is to add to the manufactured article in the American mill an extra cost of 56 cents for each ton of paper, the value of which is shown to be \$42.50. Mr. Guthrie argues, in his very complete factum, that the increased rate, resulting as it does in this sum, creates an unjust and unfair discrimination to the American buyer. He also argues, however, that the ultimate sufferers will not be the buyers, dealers, or traders, but the producers, which, of course, satisfactorily removes any loss from the American buyer, who is claimed to be unfairly discriminated against by the increased rate. Discrimination there is none, the rates for Canadian delivery being based on the resultant traffic. Arguments have been advanced, practically on the line of conservation of the country's resources, on the proposition that it is much better for Canada that this pulpwood should be used in it, and the like. In my view, this Board has nothing to do with such considerations at all, and is not and should not be moved by any ulterior consideration or motive. If the rate is an improper rate, there is no reason in the world why it should be allowed to stand because an Ameri-

can mill absorbs the increase instead of the Canadian producer.

"There is but one question open for our consideration—are the rates now attacked reasonable or not, having regard only to a proper consideration of the economical principles surrounding the services? I am of the view that they are reasonable.

"As regards the rates of the Canadian Pacific Mont Laurier Branch, however, the original rates of the Waltham and Nomining branches may have been constructed, considering the character of the Laurentian grades, the rates appear to be reasonably proportioned as between the Mont Laurier and Nomining

sections, and with respect to the main line and other sections.

"Objection is made to the withdrawal of the rates from the Canadian Pacific Railway stations West of Avonmore to and including Smith's Falls. While there may be little spruce along this section, at least one of the applicant firms is particularly interested in poplar, of which, it is stated, large quantities will move. The Canadian Pacific Railway Company expressed its willingness to establish rates on this traffic as required, but it is not just that shippers should be expected to wait thirty days be-fore they can use the rates, even if granted. No good excuse was offered for the cancellation; and as the rates from Avonmore and stations immediately east are not being changed those up to Smith's Falls must be restored.

'Subject to this provision, I think the tariffs before the Board should be allowed; but in order to afford reasonable time for completing existing contracts, the effective date is further postponed to August 15, 1913.

MINORITY OPINION BY COMMISSIONER MCLEAN

In a minority opinion written by Commissioner McLean, it is shown that the proposed increase in rates was not justified by conditions. Following is the text of the minority opinion:

"The board has already in various cases expressed the opinion

that where a rate has been in force for a considerable time and business has been built up under this rate, that such rate by efflux of time becomes presumptively reasonable; and the board has held that when this rate is increased, the burden is upon the railway to justify the increase. This has been limited by the principle which is recognized in the application of the Dominion Millers' Association regarding rates on grain and grain products to the Maritime Provinces, that where rates had been held down below the normal basis by water competition it was permissible to raise these rates more closely to the normal standard when the

water competition became less effective. I recognize that the Interstate Commerce Commission has, as result of a decision by the Supreme Court, given much less weight in recent years to the presumptive reasonableness of a rate of long-standing. decisions now show that a variety of other factors have to be considered, and the fact that a rate has been in existence for a period of years does not now remove from the applicant the onus of proof ordinarily existing when a rate is attacked as unreason-

able.
"The board, however, has laid down the position that when a rate is increased the burden is upon the railway to justify this increase; and it has further held that general allegations as to increase of cost of service, etc., are not conclusive as to the reasonableness of the rate. Personally, I am of the opinion that the railway should adduce particular information as to the increase of the particular costs affecting the traffic in question, if increase of cost is to have any adequate weight in justifying the reasonableness of the rate attacked. In a recent decision of the Interstate Commerce Commission, Geo. A. Hormel & Co. V. C. M. & St. P. Ry. Co. et al., 26 1. C.—C. 1, 14, the following language occurs.

Defendants introduced some testimony as to the increased cost of transportation by reason of higher price of equipment and greater wages paid employees, but such statements can have little weight when presented in the abstract with no attempt to allo-

cate charges or consider corresponding reductions in the cost of transportation resulting from greater efficiency.'

"The railways state in the present case that it is impossible to so segregate costs as to give this information. That may be so as the statistics of the companies are at present kept. convinced that the companies have conclusively discharged the onus which it seems to me rested upon them, I am unable to aggree in the disposition recommended by the majority of the Board."

Rules Governing Pulp and Paper from Canada

(SPECIAL TO PAPER)

WASHINGTON, March 3-New regulations were promulgated washington, march 5—New regulations were promulated last week by the Treasury Department to govern the entry of woodpulp, paper and paper board from Canada. The new rules amend the requirements in Regulation 4 (T. D. 31,772 of July 26, 1911) under Section 2, Act of July 26, 1911, and the text of the announcement to collectors and other officers of the cus-

toms is as follows:
"In order to be entitled to the benefits of said Section 2,

articles must be entered subject to the following provisions:

"(a) The exporter must include in his declaration indorsed on the invoice a statement of the name of the manufacturer, the place of the manufacture, the name of the province in which the wood was grown, with the respective percentages of Crown and private-land wood used in the manufacture of the articles, whether

or not the articles contain any wood or pulp foreign to Canada.

"(b) The importer must make an affidavit at the time of entry that the articles were produced in and exported directly from

"(c) The appraiser must be satisfied and so report on exam-(c) The appraiser must be satisfied and so report on examination that the articles are the product of Canada and are of the character and value specified in the law as requisite to free entry.

(d) The collector must be satisfied that the articles are entitled to free entry under the said provision of law.

"Shippers' declarations on invoices of such articles certified on and after March 20, 1913, will be required to conform to the requirements in paragraph a of the said regulation as herein

quirements in paragraph a of the said regulation as herein amended. "Franklin MacVeagh, Secretary."

The Quality of Foreign Sulphite Pulp

[SPECIAL TO PAPER]

APPLETON, Wis., March 3-Speaking of the effect in America of the foreign sulphite situation, a certain manufacturer to-day expressed the opinion that writing and bond paper mills which expressed the opinion that writing and bond paper mills which have been making foreign sulphite a large constituent of their papers would be obliged before long to get back to making their papers entirely of rag stock. This is true not only on account of the difficulty of obtaining foreign sulphite and the high price charged for it, but also on account of the constantly deteriorating quality. Why these sulphites are not as clean as they used to be not known but certain it is that for the last two years they is not known, but certain it is that for the last two years they have been getting dirtier and dirtier, until the time is coming soon when the manufacturer will be unable to use them for the soon when the manufacturer will be unable to use them for the qualities of paper he was before accustomed to do, for what goes in in the sulphite is quite certain to come out in the paper. When the time actually comes for making the change a good many mills will suddenly find that their rag room capacity is entirely inadequate.

International Paper Co.'s Good Year

DIVIDENDS AFFECTED BY CANADIAN COMPETITION

The annual report of the International Paper Company for 1912 has just been issued under date of Corinth, N. Y., February 26, 1913. It is signed for the directors by Philip T. Dodge, the new president of the company. The following is the text of the report:

Your directors submit herewith their report for the year ending December 31, 1912. Report of the treasurer (including balance sheet and profit and loss account), duly certified, is herewith submitted and made a part hereof.

The volume of business done was satisfactory. Net profits, after deducting expenses, depreciation and other charges, were

preciation amounting to \$1,131,614.64.

"Through the action of sinking funds, the bonded indebtedness

was reduced \$503,000.

"The paper industry is passing through a period of severe trial, owing to tariff changes, the establishment of competing mills in Canada, the increasing cost of wood, and the refusal of Canada to the light of the lig permit the exportation of its cheap wood for the use of the United States manufacturers. These and other conditions which injuriously affect prices and profits, necessitate many changes in the properties and methods of this Company to safeguard its interests through future years. These matters are receiving careful consideration and, although dividends are affected for the time being, it is believed future results will justify the conservative course of the management.

"For the Directors,
"PHILIP T. DODGE,
"President."

The detailed statement of assets and liabilities follows:

GENERAL BALANCE SHEET December 31st. 1912

Assets

710000	•
Cash	\$ 922,969.43
Accounts Receivable	3,045,050.48
Notes Receivable	1,533,182.06
Finished Goods, Materials and Supplies	7,092,552.82
Deferred Assets	325,816.15
Due from Subsidiary Companies	2,002,849.24
Woodlands	3,456,516.68
Securities of Sundry Corporations.	10,141,816.30
Mill Plants and Water Powers	44,329,666.13
Sinking Fund Accounts	3,801.37
Furniture and Fixtures	8,679.50
a milette and i investor.	
	\$72,862,900 .11
Liabilities	
Current Accounts Payable	\$ 472,870.93
Notes Payable	5,818,000.00
Dividend payable January 15th, 1913	112,033.50
Accrued Bond Interest and Water Rents (not	,
due)	244,873.33
Divisional Mortgage Bonds	2,070,000.00
First Consolidated Morgage 6% Gold Bonds.	8,750,000.00
Consolidated Morgage Convertible 5% Gold	0,100,000.00
Bonds	5,150,000.00
Common Stock	17,442,800.00
Preferred Stock.	22,406,700.00
Supplies	10,395,622.35
Surplus	10,383,022.35
	\$72,862,900 .11
Net Revenue from Operations	\$ 2,562,958.20
Other Revenue	675,400.94
	3,238,359.14
Depreciation of Mill Plants \$1,131,614.64	
Interest—Bonded Debt 909,066.52	2,040,681.16
Net Revenue	1,197,677.98
Dividends on Preferred Stock	448.134.00
Dividends on Treferred Stock	440,134.00
Surplus for period	749,543.98
Surplus December 31st, 1911	9,646,078.37
	
Surplus December 31st, 1912	\$10,395,622.35

OWEN SHEPHERD, Treasurer.

CERTIFICATE OF REGISTER

We hereby certify that the direct note payable liability of the International Paper Company outstanding and unmatured on December 31st, 1912, reported by it, and registered by us, was \$5,818,000.

BANKERS TRUST COMPANY, Registrar, By B. W. Jones, Asst. Secretary.

We hereby certify that the above statement of Assets and Liabilities is in accord with the books and records, and, in our opinion, correctly sets forth the financial condition of the International Paper Company at the close of business December 31st, 1912.

THE AMERICAN AUDIT COMPANY,
By F. W. LAFRENTZ, President
THEO. COCHEU, Jr., Secretary.

Canal Bill Reported Favorably

[SPECIAL TO PAPER]

WATERTOWN, March 3-The bill of Assemblyman John G. Jones, of Carthage, calling for an appropriation of \$40,000,000 to cover the cost of the construction of the proposed canal from Carthage through Watertown to Sackets Harbor on Lake Ontario: the conversion of the Glens Falls feeder into a short canal: the Chemung canal and the Flushing-Jamaica Bay canal, has re-ceived the approval of the Ways and Means Committee of the Assembly and will undoubtedly pass both houses. At a hearing before this committee held at Albany last Wednesday all of the four sections of the state to be benefited by the proposed canals were represented and all favored the bill. C. C. Burns of this city, chairman of the canal committee of the Chamber of Commerce and Secretary Francis H. Lamon of the Chamber of Commerce attended the hearing.

Saturday a campaign was started by the Chamber of Commerce to get all of the manufacturers and commercial organizations of Northern New York to write the legislators from their districts and to the governor urging favorable action on the bill, which will mean more to the Black River Valley and Northern New York than anything that has been proposed in years. The bill will take the freight monopoly away from the New York Central and make it possible for manufacturers to get their shipments by water transportation at a low rate, thus making it it possible for them to successfully compete with manufacturers who are blessed with better freight transportation facilities than those of Northern New York.

It developed at the hearing that Pennsylvania is contemplating the construction of a canal from the anthracite coal regions to the New York state border. This if extended to the Chemung canal would bring coal to this state at a much lower rate than is now being paid and would be another item in the reduction of the

cost of production to manufacturers.

BLACK RIVER.

Mill News from Black River

SPECIAL TO PAPER

WATERTOWN, March 3-The West End Paper Company, of Carthage, will not be able to open its mill before April 1 on account of the break in the old flume about two weeks ago. This break occurred during the high water, which carried the wheels off their shafts to the bottom of the wheel pit. A coffer dam was built and an attempt made to pump the pit out, but there ware so many leaks, that it was impossible to get the water out until a few days ago, when a diver was hired to stop up the holes through which the water was pouring into the pit. This was through which the water was pouring into the pit. This was finally accomplished, however, and the pit drained of the nine feet of water that was in it. The wheels will now be hoisted out and a concrete foundation put in, so that it is believed that everything will be in readiness for operation again at the end of a month's time.

James Smiley, who has had twenty-five years experience in the talc business and who has been employed in charge of the the tale business and who has been employed in charge of the construction of the new air compressor plant for the International Pulp Company at Taleville, has resigned his position with that company and on Saturday took up his duties as superintendent for the Uniform Fibrous Tale Company, which has recently opened up a new mine and established a new mill in the tale belt near Gouverneur. This mine produces an exceptionally high grade of tale and the mill is operated by electricity generated by the Company house on the Company the C at a power house on the Oswegatchie river. Mr. Smiley began his career in the talc business in the employ of the Natural Dam Pulp Company, which was finally merged into the International Pulp Company, when that concern was organized.

BLACK RIVER. Digitized by GOOGLE

New York's Protest Against Freight Rates

SPECIAL TO PAPER

WATERTOWN, March 3—The opposition to the advance in freight rates on pulpwood from Eastern Canada to New York State was started by Frank A. Summerville, of this city, a well known dealer in Canadian wood, who purchases thousands of cords every year for the mills of this section. Associated with him in the fight was H. J. Cadwell of the Champion Paper Company, of Carthage, and A. H. Campbell and C. H. Tiffany of

New York City.

"It is an unjust and unfair procedure instituted by Canadian mills to cripple the industry in New York, the strongest news-print section in the world," said Mr. Summerville. That is perfectly apparent from the fact that no increases were proposed for the Rumford Falls, Me., or Berlin N. H., districts. Taking a 50,000 pounds capacity car as a basis it now costs nearly double for freight charges to Canton and Carthage that it does to Berlin and Rumford Falls. The charges on this amount of wood are now \$47.50 to Carthage and Canton; \$40 to Fort Edward and \$26.50 to Berlin and Rumford Falls. The increase will amount to about one cent a hundred pounds or \$5 a carload, bringing the barren up to \$62.50 to Carthage and Canton; charges up to \$52.50 to Carthage and Canton and \$45 to Fort Edward."

Several times during the past two years the American manufacturers in this state have succeeded in having the operation of the rate suspended. On July 26,1912, however, the railroads the rate suspended. On July 26,1912, nowever, the railroads published the new rates containing the proposed increases to go into effect September 2. This was suspended until after a hearing before the commission in October which was attended by Mr. Summerville and Mr. Cadwell. At that time another suspension was granted until Feb. 4 and from that time a suspension was granted until March. Last Wednesday Mr. Cadwell received word that a suspension had been granted until Aug. 1 and was assured that the American manufacturers would win. Two days later the report of the decision of the commission was received later the report of the decision of the commission was received.

Hardly was the hearing before the commission over in October, when the same railroads lowered the rate on pulpwood for Canadian manufacturers a cent and a half a hundred, giving them another advantage over the American mills in this section.

President Taft's tariff board proved that it cost the Canadian manufacturers \$5.35 less per ton to manufacture newsprint than it did American manufacturers. When Section 2 of the reciprocity act took the duty off Canadian paper, they had that much advantage over the American mills. With no increase in the price of paper here and with an increase of \$5 a car on the freight for pulmond together with the cent and a half reduction granted. for pulpwood, together with the cent and a half reduction granted Canadian mills, the difference in the cost of production will be over \$6 a ton in favor of the Canadian mills.

BLACK RIVER.

Uneasy about Tariff Changes

[SPECIAL TO .PAPER]

APPLETON, Wis., March 4-According to what is told to your correspondent by manufacturers, business is somewhat mixed just at present, some mills being quite well provided with orders while others are not so fortunate. On the whole it is perhaps true that February business will not show up quite as well as January business. There seems to be a feeling however, that this condition is only temporary, and if the tariff revision is hurried through, as is promised, present tendencies will soon give way to better. While no great tariff changes are expected in the paper business or any other business, still it is but natural for buyers to refuse to make any large commitments until they know exactly what to expect. In this connection it may be stated that some contracts for product have been taken in this valley, at prices "subject to tariff revision." It is realized that while lower grades, comparatively, have little to fear from tariff revision, for the higher grades there are still dynamic (or perhaps it would be appropriate to call it "dynamite-ic") possibilities of the most serious nature.

It should be remembered in this connection that January business, both with the jobbers and the mills, was unusually good, so that the comparison drawn above makes present conditions by no means serious. Even in grades which seem most disposed to quietness, such for example as wrapping papers, little or no disposition is evidenced to shade prices. One compelling reason for this is found in the increased price of hemlock pulpwood over last year, and the fact that timber is being cut and delivered on pulpwood contracts as low as 3 inches in diame-The winter has been a very bad one for the pulpwood est. There has been almost no sleighing in the woods, and only such timber has been brought out as was nearest to the railroad tracks. Late last week Wisconsin was treated to the first real blizzard of the winter, when a foot or more of snow came down. But it cannot be expected to stay very long at this season.

International to Make Paper Bags

[SPECIAL TO PAPER]

NIAGARA FALLS, March 4-The local plant of the International Paper Company has put one machine on the manufacture of material for the manufacture of paper bags to be used in all branches of commerce. The bags may be used to hold sugar, charcoal or a dozen other commodities demanded by the market. The venture is entirely a new one in the local field, and success seems assured, judging from the number of orders filed with the company.

Last Niagara Indian Meets His End

[SPECIAL TO PAPER]

NIAGARA FALLS, March 4—At the very point of the Niagara frontier where his forefathers ambushed and slew to a man a company of British troops acting as escort to a caravan in 1765, was found late last week the dead body of John Garlow, the last pagan Indian of the Tuscarora reservation. Garlow, who was sixty-five years old, was soon to be pensioned by the New York Central railroad by who mohe was employed as a watchman. He came to the city on payday, as was his custom, and went towards his station after night had fallen. He is believed to have missed his bearings and tumbled fifty feet over the cliff into the Devil's Hole, where the massacre took place in the years gone by. Garlow's scull was fractured and he was otherwise injured. His body was found through sheer accident. He was married and lived on the Tuscarora reservation, nine miles from this city. His funeral was held according to pagan rites.

Mr. Williams' Work in Chemical Engineering [SPECIAL TO PAPER]

WATERTOWN, March 3—On Friday Frank M. Williams, chemical engineer and consulting chemist of this city, read a paper on "Some of the Features of the Manufacture of Sulphite Pulp," before the Canadian section of the Society of Chemical Industry at Queens University, Kingston, Ont. The meeting was attended by a large number of paper and pulp manufacturers of Canada. of Canada.

Mr Williams has done much work for the paper, pulp and lumber industry and within a few days will leave for South Carolina, where he has established a chemical process for preventing sap stain and mildew in lumber that has never been considered first class, thereby making a large amount of lumber available for the market.

Under the name of the Chemical & Engineering Company of this city, Mr. Williams is now engaged in developing some new industries, which have a bearing on the paper industry. The new concern is engaged in manufacturing an apparatus for analyzing flue gas from smoke stacks of manufacturing plants to determine how much carbon escapes unconsumed. This device is now on the market and is meeting with a large sale. By the use of it the manufacturer is able to provide means for consuming the carbon that now goes up his stacks in the form of black smoke and obtaining greater economy and efficiency in his fuel, saving hundreds of dollars each year.

The new company is also engaged in the manufacture of leather belt waterproof dressings, non-slip belt food and belt

cement.

Two of the gas analysis devices are now in use in the Navy Experiment station at Annapolis and in regard to them, Mr. Williams recently obtained a letter from William N. Berkeley, the consulting chemist in charge, referring to an article which he has published on "Flue Gas Analysis as a Means of Furnace Control," which contains the following statement, "In the opinion Control, "which contains the following statement, in the opinion of the writer no modification of the original Orsat type possesses as many advantages of accuracy, speed, ease of adjustment and manipulation, as does that of the model designed and manufactured by F. M. Williams of Watertown, N. Y." BLACK RIVER.

Promotion for "Tom" Fynes

Thomas Fynes, affectionately known among the office staff of the International Paper Company as "Tom" Fynes, is now with the Continental Paper Bag Company, 17 Battery Place, where he will soon take up the duties of assistant treasurer. Fynes had his start with the International Paper Company in the accounting department some fifteen years ago. After advancing to the post of chief clerk, he was entrusted with the auditing of the accounts of subsidiary companies and he also looked after the woodlands department as the personal representative of Mr. Burbank, inspecting new lands, cruising, etc. "Tom" Fynes has the reputation of being a born accountant and is exceedingly competent as an auditor. Digitized by

Mr. Parant's Portrait

The portrait of L. J. Parant, manager of the purchasing de-artment of the Finch, Pruyn and Company Mills, Glens Falls, N. Y., was inadvertently omitted from the album of mill super-



intendents published in the preceding issue of PAPER, and we accordingly give space to it here. Mr. Parant took up the paper business nineteen years ago, and from the beginning realized that to be suc-cessful he had to be efficient, that is familiar with all the branches involved. He therefore, began his career by learning the manufacture of sulphite cellulose, and worked in every department until he became superintendent of the mill, which he handled with much success. He next entered a ground wood mill and again progressed through each department and successfully superintended the mill. His next esperience was working up through all the branches of a paper mill to the position of superintendent, which he also did successfully. He was also connected for two years with

the engineering and construction work of paper and pulp mills. In 1904 he entered the employ of Finch, Pruyn & Company at at the time the ground was broken for what is considered today as the most up-to-date news mill on this continent, and on January 1, 1912, was promoted from the position of superintendent to manager of the purchasing department and assistant to the manager of sales, which position he now holds.

Snow Would Help the Situation

[SPECIAL TO PAPER]

WATERTOWN, March 3-Unless a good fall of snow soon arrives in the upper section of the Adirondacks, lumbermen, mill owners and contractors will suffer a great financial loss as there has been no snow there thus far this winter and but a short time remains in which they can get their wood out under the most favorable conditions. Should a good fall of snow come, the contractors who have cut the timber will not be able to break even as they have been compelled to feed and house men and teams all winter in anticipation of the snow that would make it possible to haul their logs from the slashes to the streams to be

floated to the mills as soon as the ice goes out in the spring.

In the Cranberry Lake and lower section of the Adirondacks, however, there has been sufficient snow for about three weeks and with two weeks more of the present weather, all of the logs will be on the skidways ready for driving down the streams. The be on the skidways ready for driving down the streams. The Newton Falls Paper Company of this city, has practically all of its logs out of the woods now and will finish up the hauling in about ten days.

BLACK RIVER.

Pulpwood Terminal Officers

[SPECIAL TO PAPER]

WATERTOWN, March 3—The Ogdensburg Pulpwood Terminal Company held a meeting at Ogdensburg Thursday and elected officers, James A. Outterson, of Carthage, head of the DeGrasse, Carthage Sulphite and Malone Paper companies, being chosen president; Mayor Charles D. Hoard of Ogdensburg was made vice president; F. A. Augsbury of Antwerp, a stockholder in the Outterson paper companies, secretary and S. L. Dawley of

Ogdensburg, treasurer.

Contractors McRoberts & Doyle are now working on the construction of a 300 foot dock at the site of the terminal, which is located on the shores of the St. Lawrence river about three miles above Ogdensburg, New York Central engineers are now planning to construct a 1,300 foot siding to the terminal, which will be ready for use about May 1, when the boats will begin arriving from the lower St. Lawrence with pulpwood from the tract, which the company has leased. The work of installing the unloading and loading conveyors will soon begin and when completed the terminal will have a capacity of 1,000 cords of wood a day. It is expected that the dock will be completed before the local lease the river in the corner. Will the company will ice leaves the river in the spring. While the company will handle no wood except for the Outterson mills, it is contemplated, if the project proves a success to establish a line of boats of its own and extend its business to other mills in this section. BLACK RIVER.

Wisconsin Waterpower Legislation

[SPECIAL TO PAPER]

APPLETON, Wis., March 3—Up to this time it has been impossible to secure copies of either of the two bills introduced in the legislature last week, providing for a reservoir system for the Fox and Wolf rivers, and applying to waterpowers generally of the state and sought to be accepted as a substitute for the Husting bill. The legislature has been deluged with bills, something like one of them having been dumped upon it, and the work of engrossing them has been delayed. Aside from matters concerning waterpower the legislature at the present session will consider other things of considerable importance. One of these will be the matter of changes suggested to the employers' liability law, and amendments to the income tax law, the latter a statute which some mills have been disposed to regard as imposing great financial hardship upon manufacturing. One bill introduced in the legislature upon which no action has yet been taken provides that owners of mill dams shall be liable for twice the amount of damages caused by the giving away of such dams.

Thomas E. Johnston, a contractor of Appleton, who for a score

of years past has made a specialty of lining and relining sulphite digesters, and has been given most of the work of that kind in Wisconsin to do, has turned his back on the past and bought a moving picture theatre at New London, about twenty miles

from Appleton.

J. E. Thomas and K. E. Stansbury, of Appleton, spent last week in Cincinnati on business.

New Power Plant for Pulp Company

[SPECIAL TO PAPER]

WATERTOWN, March 8—It is expected that within a few days the new power plant of the International Pulp Company at Talcville will be completed and from it the compressed air will be distributed among the six tale mines of the company for their operation. The new air compressor, which is being installed has a capacity of 425 horse power which is regarded as more than sufficient for present needs, as the old compressor in the plant, which burned last fall had a capacity of but 250 horse power. The compressor has two fly wheels measuring 10½ ft. and 9½ ft. The compressor has two ny wheels measuring 1092 it. and 392 it. an about three-fourths of a mile long and distributed among the mines for drilling, hoisting and pumping. At the present time two steam plants are being utilized for this work at mines 2½ and 3 and a new seventy-five horsepower hoister has been installed in the new building for use at mine 2½. It will be connected with a wire cable running over the river, the railroad tracks and the highway. The company is now considering the possible installation of an electric generator to furnish light for the mines. BLACK RIVER.

New Moves in Maine Pulp Industry

BANGOR, Mr., March 3-There have been some rather important moves in connection with the pulp and paper industry in this section the past week. The offices of the American Realty Company which have been in Bangor for a number of years have been moved to Portland and Hon. F. Marion Simpson, for the past three years vice president of the company and handling its affairs in this section, has terminated his connection with the company. The American Realty Company is a sub-sidiary company of the International Paper Company and was organized in Maine for the purpose of procuring the pulp-wood supply for the mills operated by the company in Maine and New Hampshire.

Everett B. Amey, who has been chief engineer of the land surveying department of the Great Northern Paper Company has severed his connection with that company and gone to Portland to accept a position with the American Realty Company and will have charge of the pulpwood department. Mr. Amey, is a young man who has been for two years with the Great Northern, coming to Bangor from the Connecticut Valley Lumber company. Gilbert Oakley, another member of the Great Northern forest force has accepted a position in Portland with

the American Realty Company.

Mr. Wandel Now With Fox Paper Co.

Otto Wandel, inventor of the Wandel Screen and the Wandel Save-All, and president of the Wandel Company, has severed his connection with that concern and accepted a position as General Superintendent of The Fox Paper Company, Lockland, O., which is contemplating considerable additions within the follow-Digitized by GOOGIC ing year.

Workmen's Compensation Bill Passes

[SPECIAL TO PAPER]

DAYTON, O., March 8-An intensity of interest was created by the passage by the Senate of the Green Workmen's compensation bill this week, an administration measure favored by Governor Cox and fathered by Senator Green, of Cochocton, Ohio. Singularly, not a vote was registered against the measure, despite the fact that bitter opposition was aroused among a large element of the manufacturers of the state. However, the opposition of the employers had the effect of securing several amendments to the original measure, which eliminated the most objectionable features. While it is now compulsory for manufacturers or employers to carry insurance for the benefit of their injured workmen, it is not essential that they insure with the state or according to the state plan.

The chief amendment to the bill was that designed to protect

the employer under the wilful act clause, which permits suit to be brought against him by an employee and throws a stumbling block in the way of the ambulance-chasing lawyer, who might be inclined to incite litigation. The amendment provides that the fees of the attorneys in such cases shall be determined by the trial judge. Thus a lawyer is discouraged from taking a case under the percentage basis. Another amendment compels the employers, who provide for their own insurance, to also contribute a certain percentage to the state insurance reserve fund. Still another amendment, raises the amount of the compensation which the liability board provides the defendants in case of death from \$3,400 and \$3,750. This comports with the other provisions of the measure, which fix the rate of \$12 a week for six years.

Liability insurance companies which have been fighting desperately to retain their privileges of operation in the state and have opposed the clause providing for the compulsory contribution to the state insurance fund, found a champion in the person of Senator Theodore Jung, of Hamilton county, who espoused their cause to the last minute, Senator Jung proposed a number of amendments, which if they had been adopted, would have completely emasculated the bill.

Paper and paper box manufacturers have shown a more pro-Paper and paper box manufacturers have shown a more profound interest in this measure than in any that has been so far enacted by the Ohio General Assembly during the present session. Recently, a delegation of local paper and paper box manufacturers, including George B. Smith, president of the Kinnard Manufacturing Company, manufacturing paper boxes and other paper novelties; Frank N. Aull, president of the Aull Brothers Paper and Box Company; A. W. Lowrey, secretary and treasurer of the Kinnard Manufacturing Company; B. I. Rike, president of the Rike Folding Box Company; John R. Klin, superintendent of the Rike Folding Box Company; Lee Woods, superintendent of the American Paper and Box Company, and superintendent of the American Paper and Box Company, and others, made a trip to Columbus to hold a conference with the committee to which the measure had been referred. While it was impossible to secure all they desired, yet they succeeded in persuading the promoters of the measure to modify it to some extent.

Elkhart Paper Co. Officers

[SPECIAL TO PAPER]

ELKHART, INDIANA, March 3—At the annual meeting of the stockholders of the Elkhart Paper Company held a week ago the following officers were chosen to represent the company for the ensuing year: Alex. G. Gilman, president and general manager; A. A. Wheat, vice-president; H. W. Parker, secretary and treasurer.

The foregoing with A. B. Connable, S. B. Monroe, D. J. Albertson and B. Hopper, constitute the board of directors, all residing in Kalamazoo, Mich., with the exception of Mr. Gilman who is at the active head of the plant. Further improvements to the many already made in the plant are now under way.

Triple Expansion Dredge Engine

The American Engine Company, of Bound Brook, N. J. has received an order from the Portland Iron Works, Portland, Oregon, for two 1,000 horsepower, triple expansion, angle type engines for use on two Government dredges being constructed by the Portland Iron Works. The engines will be of the twin-angle type with two horizontal and two vertical clyinders, the two vertical being the low pressure, and will be directly connected to a large centrifugal pump. This type of engine was selected because being well balanced it operates at comparatively high recedents of a more advantageous design of centrispeed thus permitting of a more advantageous design of centrifugal dredge pump. The angle arrangement also eliminates vibration and pounding and saves floor space all of which are desirable features for this service.

Fire Nearly Wipes Out Riordon Mill

[SPECIAL TO PAPER]

MERRITTON, ONT., March 4-Perhaps the largest fire in the history of Merritton occurred Sunday night, when the plant of the Riordon Paper mills was damaged to the extent of about \$150,000 The cause of the fire is attributed to crossed electric wires in the west end of the sulphite plant. It began about 7 o'clock and was not fully extinguished until 3 o'clock in the morning.

The alarm was first sent in to the Merritton fire company, which responded immediately. They were unable to control the flames and a summons was sent to the Thorold and St. Catharines com-

The combined forces did effective work, and succeeded

panies. The combined forces did effective work, and succeeded in checking the flames, which, driven before a high west wind, was the greatest handicap the firemen had to contend with although the cold was also very severe.

The sulphite plant of the mill, was completely destroyed. The loss is estimated at \$100,000. A pile of pulpwood is still smouldering and represents another loss of \$50,000. The firemen worked hard and succeeded in saving the costly papermaking machines in the plant. The total loss is placed at \$100,000 covered by insurance. The most of this is held by Montreal companies.

This is perhaps the worst fire in the history of the village and it was only through hard work of the firemen and villagers that

the entire plant was not destroyed.

Damage Not so Great as First Reported

[SPECIAL TO PAPER]

MERRITTON, ONT., March 4—The total loss by the fire in the mill of the Riordon Pulp and Paper Co. here last night will probably not exceed \$50,000. The digester house and screen

probably not exceed \$50,000. The digester house and screen room were totally destroyed, and considerable damage was done to wood in the stock pile which caught fire from sparks. Before the blaze was extinguished 200 cords of wood went up in smoke. The plant was fully insured, with insurance of profits until production is resumed. The twenty-five ton curtailment of output will be taken care of by the Hawkesbury plant, which will fill all contracts until repairs are completed at Merritton.

Millspaugh Suction for John Strange Co.

[SPECIAL TO PAPER]

APILETON, Wis., March 3-The John Strange Paper Co., of Menasha, is putting in a Millspaugh suction roll. It has awarded the contract for its 500 horsepower steam turbine to the Allis-Chalmers Co., The turbine will be ready about June 1. In connection with it the company will put in a 200 k. w. generator and several motors. The additional electric power principally will be used in driving additional beating machinery which the company will instal.

NEWS AND NOTES OF THE TRADE

John H. Thickens, manager of the pulp and paper laboratory at Wausau, has departed for the Pacific coast, where he has been sent by the government, to investigate pulpwood timber conditions with the idea of recommending to the government a price at which to sell stumpage in Alaska. During his absence his duties at Wausau are in charge of George McNaughton.

Illustrating the improvement in apparatus that has taken place in a comparatively few years, the Island Paper Co. of Menasha, has recently put in a new pump to supply water to its sulphite mill. It replaces a pump that required thirty-five horse power, and itself consumes fifteen horse power and furnishes more water

than the old pump.

Two new water power developments are contemplated in the western part of the state. One is a new concrete dam by the Chippewa Valley Railway & Power Co. across the Chippewa river and the other a dam and electric transmission equipment of about 300 horse power on the Apple river, New Richmond.

A fire doing about \$500 damage, occurred a week ago at the south side pulp mill in Grand Rapids, Wis. Dynamite was used to loosen the frozen pulp piled outside, and started a fire

in the pile.

A. A. Babcock, formerly of Appleton, who recently was appointed to be in charge of the new government flood stations on the Wisconsin river, made a trip to the headwaters of the stream last week to look the ground over and see about establishing the stations

D. T. H. MacKinnon of Menasha, has arrived at Honolulu,

where he is to spend the rest of the winter on a vacation visit, and is reported to be delighted with the place as a winter resort.

E. E. McCord, who has been calling on the paper trade probably for as many years as any other man on the road, visited the Fox river valley last week. Digitized by

Maine Spruce Used in Papermaking

[SPECIAL TO PAPER]

BANGOR, ME., March 3-Many of the bright and enterprising men now engaged in the paper or pulp industry in Canada obtained their knowledge of the business in the states. Among those whom Maine has recently sent across the border is Hon. N. M. Jones, formerly of Bangor, but now of the Partington Pulp & Paper Co., Ltd., of St. John N. B. Most of the prominent pulp and papermakers of the United States know Mr. Jones, who formerly conducted the Katahdin Pulp & Paper Co.

Mr. Jones made an address last week before the Natural History society of St. John and in the course of his remarks gave the New Brunswick paper men something to think about. He sounded a note of warning and said that some of the manufacturies in the United States would be obliged to shut down before long because of lack of timber and, although the conditions are much better in New Brunswick, Mr. Jones urged steps in reforestation before the damage is done and it is too late. Speaking of Maine conditions Mr. Jones said:

"The paper industry is working a remarkable change in the disposition of the spruce supply in Maine. As an example of this it is stated that the Great Northern Paper Co., which in recent years had consumed fifty to seventy millions of feet of spruce logs annually is now using from ninety to 100 million feet annually. This increase has resulted from the additional building of pulp and paper mills, one at East Millinocket and one at Dolby Rips. The logs for the Great Northern will include ninety million feet from the Penobscot river and ten to twenty million from the Kennebec waters. The amount of spruce diverted to these mills is equal to the annual output from the West Branch of the Penobscot in the palmy period of timber production on that stream.

"When the amount of spruce required for other words is added to that consumed by the Great Northern Co. it can be seen that the bulk of Main spruce hereafter is to be devoted to paper manufacture, leaving the lumber business of that state, so far as spruce is concerned, a diminished quantity. The paper interests have an advantage over the saw mills for a good deal of spruce turns out low grade lumber while it is pretty poor spruce that

will not make good pulp.
"It is a mistaken idea that Canada is one unbroken forest of pulpwood and it is a mistaken idea with a great many people that large areas of land mean unlimited amounts of the unnecessary woods for pulpmaking. The amount of standing timber in Canada, suitable for pulpmaking is vastly overrated. The Canadian land contiguous to shipping points are being fast depleted, the cost of wood is advancing, and duty or no duty, the large consumers of paper must pay a higher price for it."

Death of a Prominent Lumber Operator

The death of Frank Hight, of Bangor, on March 1, removed a man who has been very prominent in Maine lumber circles for half a century for it was nearly 50 years ago that Mr. Hight formed a copartnership with the late Llewellyn J. Morse and the late Hiram Oliver, from which grew the very important lumber concern of Morse & Co., to-day employing hundreds of men and doing the largest lumber business in this section. Mr. Hight was also interested in other business enterprises and for many years was one of the board of directors of the Orono Pulp & Paper Company.

A proposition is before the Maine legislature, introduced by Representative Harriman, of Cherryfield, which plans the establishment of a state forestry commission to be appointed by the governor and to consist of five members who shall serve without pay. It is provided in the bill that the appointers must be substantial owners of wild lands within the Maine forestry district. This is not a new suggestion but seems very likely to become a law. It is felt that the state land agent would be greatly aided in his work by such a commission which could give advice relative to the patrol service and to the appointment of wardens and on general forestry conditions.

Proposed Tax on Log Driving

[SPECIAL TO PAPER]

BANGOR, ME., March 3 - A very animated hearing was held before the Maine legislative committee on Interior Waters Feb. 27, when the committee considered a bill to give a log driving company on Fish River the right to charge 25 cents a thousand feet for driving. Hon. Bryon Boyd, former secretary of state, appeared for the bill and a number of the land owners in the Fish river section appeared in opposition, taking the position that if a toll was to be paid for driving the land owners in that vicinity could and should handle the matter. It is stated that the report of the committee will uphold the position of the land owners.

Wisconsin Notes of Interest

[SPECIAL TO PAPER]

APPLETON, Wis., March 4—Two new bills affecting water power in which manufacturers are interested, were introduced in the Wisconsin legislature last week. One was the bill con-templating the authorization of the building of a reservoir system, principally in Langlade county, to protect the head-waters of the Wolf river, from which comes a large portion of the water flowing into Lake Winnebago and thence down the Fox river. A similar bill was introduced in the legislature two years ago, but failed to get attention before the legislature's adjournment. It is not believed that any serious objection will be made in the legislature to this bill, as a similar law is in effect covering the Wisconsin river, and furthermore that state itself. through its forest reserve commission is committed to the policy of protecting the headwaters of water power streams, such as the Chippewa. Wisconsin and Menominee, where the state's forest

reserve is being developed.

The other bill is in the nature of a general water power bill. which has been prepared by the water power interests, expressing their opinion of the action that should be taken by the state along water power lines, intended to be put forth as a substitute for the very objectionable Husting bill, which was described in this correspondence last week. What the fate of these two hills

will be, remains to be seen.

Manufacturers hereabouts were disposed to be somewhat amused at the report of the excitement at the A. P. & P. A. banquet over the speech of Attorney-General Bancroft of Wisbanquet over the speech of Attorney-General Bancroft of Wisconsin, which they were inclined to believe would give eastern people a better idea than they had had theretofore, of the strenuousness of popular political beliefs and their expression in Wisconsin, which, as Roosevelt once said, is "the nation's laboratory" for working out "progressive" experiments.

Peter Rukidina, an employee of the Kimberly-Clark Co. at its mill at Niagara, was killed last week. A conveyor became clogged and he stepped into the machine to free it, when it suddenly started and crushed his head

denly started and crushed his head.

Willus Snyder, an employee of the Consolidated Water Power & Paper Co., Grand Rapids, fell off a pulp pile last week and sustained injuries to his spine which caused paralysis of both legs.

Convention Number of "Paper" Well Received

[SPECIAL TO PAPER]

NIAGARA FALLS, March 4-The convention number of PAPER, received here, is in demand in all paper offices. most complete collection of solid matter seen here since the city's incorporation. The illustrations are particularly good. That of President, the Hon. A. C. Hastings, of the American Paper & Pulp Association, is much admired. Mr. Hastings is an exmayor, and is a part of the city's progress.

To Make Linen at Niagara Falls

[SPECIAL TO PAPER]

NIAGARA FALLS, March 4—One of the recent acquisitions to the industrial chain at the north end of the city, inaugurated by the late Arthur Schoellkopf, is the Niagara Falls Linen company. situated in Highland avenue, under the shadow of the plant of the American Sales Book company. Already there are fifty looms in operation. Within eighteen months, it is confidently asserted by the management, the plant will be increased to four times its present capacity. The finest linen fabrics are produced. and it would seem as if the old countries would be compelled to abandon their claim to supremacy in this particular branch of commerce, if the present good fortune continues with the local plant. Much of the waste stuffs from the company will be sold to paper manufacturers who will use the material in the making extra quality paper. John L. Harper, chief engineer of the Hydraulic Power company, is president of the linen company.

To Make Revolving Suction Rolls

The Binns Revolving Suction Roll Company is a new Connecticut corporation whose principal place of business is Norwich. It has been incorporated for the purpose of manufacturing paper mill machinery, as well as the suction rolls, of which Arthur E Binns is the inventor and patentee. The capital stock is \$150,000

divided into 1.500 shares of \$100 each, and it is understood the new company will begin business immediately with \$150,000.

The incorporators are Elmer C. Jewett, Arthur E. Binns, Rutherford C. Plant and Otto E. Wulf, all of Norwich, Conn. Mr. Binns, the inventor, is a native of South Windham, Conn. and an experienced papermaker.

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Westinghouse Motors For The Beater Room



Solos (Misso in 45 American Cause



The Orr Felt & Blanket Co.

Alle a fee O Pager Makers

FELTS AND JACKETS



LUDICANN PAPER (D)

TIMEN LECKLES AND LED WAY

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Work of the German Paper Chemists

Continued from page 20

be tapped at the place which supplies the highest exhaust steam pressure requisite, and the steam be reduced in pressure to the lower pressure desired. The tap-off turbine can deliver steam of at most 5 to 6 atmospheres excess pressure.

In the manufacture of chemical pulp the exhaust steam is generally used only for drying, not for lixiviation. One principal reason for this is that care must be taken to provide for the exhaust steam pipes of sufficient diameter, since otherwise loss of pressure occurs. The largest turbo-dynamo so far built by the A. E. G. delivers 30,000 hp.

Dr. Müller asked the author of the paper whether when lixiviation was effected with the exhaust steam of the turbine, the lye or acid vapors could not get back into the turbine due to the heating pipes not remaining tight. A mill which lixiviates with exhaust steam may of course till now have had no such difficulty.

The author of the paper thought such was not to be feared since the apparatus which would have to remove the excess heat would hinder such a return of the va-

pors from lixiviation.

In reply to a further question it was stated that it was preferable not to employ pressures for the exhaust steam over 5 to 6 atmospheres because the efficiency then quickly falls, and difficulties in construction arise owing to the stuffing-boxes.

Director Süreth had not been able to determine considerable wear in the turbine-blades, but emphasised the necessity of paying attention to good, clean feed

water.

A question referring to the highest economical pressure for drawing off exhaust steam was answered by the author stating that the limit of such pressure had not yet been accurately determined.

NOTES OF THE MEETING

The annual election for directors, resulted as follows: In accordance with the consitution, the terms of Messrs. Robert Emmel, Dr. Arthur Klein, Dr. Paul Klemm and Commercial Councillor Hans Zanders, expired. The retiring directors were unanimously reelected members of the board.

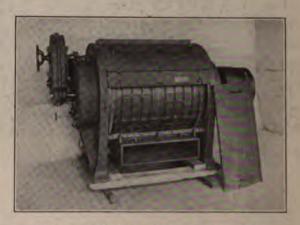
Dr. Max Mueller, Dr. Walter Vieweg and Prof. Ernst Kirchner, were reelected members of the trade committee, there being no opposition, and the number of members of the committee was increased by the unanimous election of Prof. Dr. Heuser, of the Technical High School, Darmstadt, as a member of that body.

On motion of Herr Ferenczi a resolution was adopted empowering the committee to complete its membership in the course of the year, should occasion demand.

Paper from Pineapple Leaves

The Honolulu Star Bulletin says that a firm of paper manufacturers in Boston, presumably A. D. Little, Inc., has made a favorable report on fiber from pineapple leaves sent to it by Dr. E. V. Wilcox, director of the Hawaii experimental station. It is found suitable for a kind of tough paper used for insulating purposes. It has been proved that the fiber can be produced with the machinery for making sisal fiber. Seventy pounds of fiber to the ton of pineapple leaves can be produced, which, at 14 tons of leaves, would be 1,000 pounds of fiber to the acre. At a profit of only 1 cent a pound this means \$10 an acre for what is now waste.

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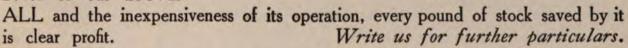
Improved Paper Machinery Co. NASHUA, N. H., U. S. A.

Sherbrooke Machinery Co., Ltd. Sherbrooke, Que. The Wandel

SAVE-ALL

Highest efficiency and minimum running expenses are the main advantages of this fibre saving device. It requires only ½ H. P. and no special attention is needed for its operation.

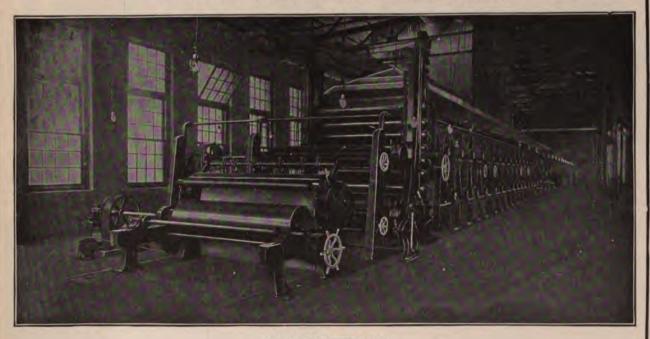
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NEW YORK, March 4, 1913.

MECHANICAL PULP

The firmness which has been a feature of the market during the past month or so is still in evidence, and under a prospective heavy movement of supplies, values are well sustained, with sales at our quotations. According to reports, stocks at milling centers are only moderate and as there are no indications of an early let up in the demand from newsprint and wrapping mills, prospects for higher prices are regarded as encouraging to holders.

FOREIGN AND DOMESTIC PULP

The volume of new contracts booked in the interval was of average proportions at about previous prices. Offerings have been light and little interest is taken apparently in distant shipments. A renewal of activity is looked for at an early date when fairly large inquiries are expected to develope for shipments over April, May and June. In some quarters higher prices are anticipated, based on the scarcity of wood in most European markets. Arrivals of sulphite pulp during the past week, showed a marked increase over the total arrivals for the preceding week of the month. As these comprised supplies sold under contract several months ago to mills direct, they passed into direct consumption. No offerings of parcels of note, exdeck, could be traced.

Sulphite foreign-	
Bleached, ex-dock 2.80 @ 3.3	5
Unbl'h'd, ex-dock 2:05 @ 2.2	25
Sulphite, domestic-	
Bleached 2.70 @ 2.8	
Unbleached 2.15 @ 2.3	10
Soda, domestic-	-
Bleached 2.25 @ 2.3	60

Soda, foreign— Unbid Spruce, ex-		
dock1.90	@	2.15
Bleached, ex-dock 2.85	(a)	3.25
Imported Kraft		
pulp1:95	@	2.10

BAGGING, ROPE, ETC.

Under favorable cable advices from primary points and a steady movement into channels of consumption prices are firm with little disposition evinced by sellers to even grant concessions on round lots. Offerings of invoices of various materials have been repeated at former values, which resulted in good sales of parcels in various positions. Arrivals are fair and comprise mostly invoices for direct consumption.

Gunny, No. 1-	
Domestic	Wool Tares, heavy1.20 @
Foreign	Foreign Manila Rope 2.45 (a)
Light Burlap1.20 @ 1.30	Domestic Rope 2.45 @
Mixed Bagging 85 @ 90	New Burlap Cut-
Sound Bagging 95 @ 1.00	tings
Wool Tares, light1.20 @ 1.30	Flax Waste, washed 1.80 @

IMPORTED RAGS

The firmness of values is sustained by a steady movement of supplies on outstanding orders and small spot stocks. Dealers as a rule report a steady inquiry for all descriptions and there is more urgency to the demand, particularly for good selected lines of linen cuttings. A fair volume of cost and freight sales were effected in the interval at about previous prices.

German	Blue Cot-		
	cs		
	t Prints.		
New Mixe	d Cuttings :	2.00 @	2.70
New Light	Cuttings !	3.75 @	4.50
Old Linen,	White	3.75 (0)	5.25

Thursday Bressener		
Old Linen, Gray 2.75 German Colored Cot-	0	4.59
tons	000	1.45
Old Linen Blues2.37		
Dark Colored Cot- tons1.20	0	1.30

DOMESTIC RAGS

Prices covering the entire list of rags are well sustained under a steady movement of supplies into channels of consumption and an active inquiry. Linen rags are attracting considerable attention and for selections of straight good quality, slight premiums over current values are paid. Other varieties are maintained firmly in sympathy with strong reports from European primary markets.

New Shirt Cuttings	
No. 15.75	@ 2.60
New Shirt Cuttings	6 2.00
No. 2	@ 4.30
Fancy Shirt Cuttings 3.90	
New Blue Cottons 3.25	
New Dark Cottons. 1.00	
New Light Seconds 3.25	
New Black Cottons. 1.25	@ 2.00

No. 1 Whites 4.00	8	4.20
Soiled Whites, street .1.55		
Soiled Whites, house 2,25	@	2.30
Thirds and Blues 1.75		
Satinette Garments . 1.00		
No. 1 Satinettes 95		
No. 3 Satinettes 85 No. 1 Tailors' Rays45	8	.55
		,55

OLD PAPERS

The general demand for all grades of paper is reported by dealers, to be rather above the average for the season. A feature of the market is the further improvement in inquiries for hard and soft white shavings, which has led to numerous large sales and an advance in price of 5 cents per 100 pounds. Holders are now quoting inside prices at 2.50 cents per pound for No. 1 hard white, 2.15 cents for No. 2 hard white, 1.85 cents for No. 1 soft white and 80 cents per pound for No. 1 colored shavings. Extra manila cuttings also shared in the advance and 1.35 cents per pound was named absolutely as lowest.

ber bound with minined i	LUSUIGE
No. 1 Hard White	
Shavings2.50	@ 2.60
No. 2 Hard White	-
Shavings2.15	@ 2.25
No. 1 Soft White	
Shavings 1.85	@ 4.95
No. 1 Colored Shav-	2 42
ings	@ .90
No. 2 Colored Shav-	N 44
ings	@ .60
Magazine Flat Stock .90	
No. 1. Crumpled80	@ .90
Solid Ledger Stock 1.65	
Ledger Stock 1.40	@ 1.45
No. 1 White News . 1:25	@ 1.30

y as lumest.			
Extra New Manila			
Cuttings	1.35	(40)	1.45
New Manila Cut-		191	
tings	1.05	10	4.10
No. 1 Old Manila	.60	(0)	.70
No. 2 Old Manila.	.45	0	,50
New Box Board Chips	.55	(0)	60
Bogus and Mill		9	
Wrappers	55	ER	.60
Strictly Overissue			
News	165	(0)	170
Folded News	.55	(0)	60
No. 1 Mixed News .			
No. 1 Mixed Papers	4234	0	.45
Common Papers	.35	6	.40
Company of the Contract of the			

TWINES

The demand for supplies on outstanding orders continues brisk while new business booked in the interval covered fair lines. Prices are maintained firmly in sympathy with the strong position of the raw material and light stocks held by manufacturers.

Sisal Hay 856 (0) 9
Sisal Lath Yarn 736 @ 8
Manila Rope 14 @ 15
Manila Rope No. 2. 11 @ 13
Jute Rope 735 @ 8
Jute Wrappings, 2 to
6 mly
No. 1
No. 2
Jute Twines, 18 1236 @ 1336
Jute Twines, 2412 @ 13
Jute Twines, 36 1134 @ 1234
Lute Twings 41/ & 8 01/ (0 10

Marline Jute, 439 936	10 IU
Marline Jute, 6 912	(a) 10
Marline Jute, 7	@ 1915
Marline Jute, 8 & 9 8%	
B. C. Hemp 1818	@ 19
B. C. Hemp, 241734	08 18
B. C. Hemp, 36 17	ab. 18
B. Hemp, 1819	
B. Hemp, 24 1836	All 1935
B. Hemp. 36 18	to 19
Amer. Hemp, 435	
& 6	61.14

CHEMICALS

The feature of the market for papermaking chemicals is the firmer upward trend of values on nearly all lines. Bleaching powder is firmly maintained under an active demand, and sales

Continued on page 38

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FOREIGN AND DOMESTIC

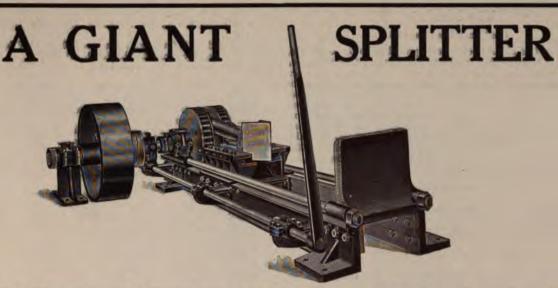
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The Markets

Continued from page 86

covering spot lots at 1.40 cents and upward as to terms of sale. Caustic soda is attracting moderate attention at former prices, or say, 1.60 cents and upward for 60 per cent as to terms of sale. Alum quotations are well maintained in the face of light stocks and a steady buying movement. Orders covered fair lines at 17/s cents and upward and at 13/4 cents and upward for powdered and ground respectively, as to quantity and quality. China clay shows strength under an active inquiry for supplies on outstanding orders and for additional lots for ddelivery over the next sixty days; holders are asking \$8 and upward and \$12 and upward per ton for domestic and imported on the spot, as to quantity and quality, respectively

Imports—Rags and Paper Stock

AT NEW YORK

Week Ended March 1, 1913

Salomon Bros. & Co., Str. President Grant, Hamburg, 255 bs. manila waste, 457 bs. rags, 57 bs. bagging.
Felix Salomon & Co., by same, 152 bs. scrap bagging, 20 coils old rope, 133 bs. rags.
E. Butterworth & Co., Str. Georgia, Liverpool, 106 bs. old rope. Marx Maier, by same, 43 bs. bagging.
Castle Gottheil & Overton, Str. Michigan, Sntwerp, 104 bs. new cuttings, 129 bs. waste paper, 126 bs. bagging.
Salomon Bros. & Co., by same, 44 bs. rags.
M. O'Meara & Co., by same, 79 bs. rags.
E. Butterworth & Co., by same, 104 bs. new cuttings.

M. O'Meara & Co., by same, 79 bs. rags.

E. Butterworth & Co., by same, 104 bs. new cuttings.

Marx Maier, by same, 458 bs. rags.

Atterbury Bros., Str. Florida, Havre, 98 bs. rags.

Felix Salomon & Co., Str. Armenian, Liverpool, 44 coils old rope.

Marx Maier, Str. Virginie, Bordeaux, 90 bs. rags.

Castle, Gottheil & Overton, Str. Toronto, Hull, 704 bs. rags.

Marx Maier, Str. Valisia. Hamburg, 33 bs. old bagging.

Atterbury Bros., Str. Minnewaska, London, 21 bs. new cuttings.

Marx Maier, Str. Prinz Friedrick Wilhelm, Bremen, 84 bs. rags.

Atterpury Bros., Str. Grangewood. Copenhagen, 311 bs. rags.

Atterbury Bros., Str. Grangewood, Copenhagen, 311 bs. rags. Marx Maier, Str. Campanello, Rotterdam, 3001 bs. rags, new cuttings, etc.

Castle, Gottheil & Overton, Str. Niagara, Havre, 135 bs. rags, 72 bs. bagging.
Felix Salomon & Co., Str. United States, Copenhagen, 95 bs.

old jute bagging.

Paul Berlowitz, by same, 122 bs. old jute bagging.

American Mfg., Co., by same, 96 bs. bagging.

A. Katzenstein, Str. Zoandyk, Rotterdam, 83 bs. bagging.

Felix Salomon & Co., by same, 468 bs. old burlap bagging.

American M(g. Co., by same, 96 bs. new rags.
Perkins, Goodwin & Co., by same, 78 bs. straw pulp.
American M(g. Co., Str. Noordam, Rotterdam, 105 bs. old jute

bagging.

K. Butterworth & Co., Str. Soperga, Genoa, 109 coils old rope,

97 ba. rags. Marx Maier, Str. Pretoria, Hamburg, 113 bs. bagging.

Woodpulp

M. Gottesman & Son, Str. Neckar, Bremen, 260 bs. (75 tons) woodpulp.

Felix Balomon & Co., Str. Zoandyk, Rotterdam, 1523 bs. (190 tons), sulphite.

Helwig, by same, 926 bs. (116 tons).

M Gottesman & Son, Str. Florida, Christiania, 400 bs. (75 tons)

VI Gottesman & Son, Str. Florida, Christiania, 400 bs. (75 tons) 443 lm. (75 tons) woodpulp.

If Ilelwig, Str., Noordam, Rotterdam, 835 bs. (104 tons).

Charle, Gottheil & Overton, Str. President Grant, Hamburg, 900 hs. (180 tons).

Velia Balomon & Co., by same, 3,960 bs. (495 tons).

Price & Pierce, by same, 3,960 bs. (495 tons)

Cuatle, Gottheil & Overton, Str. Aragonia, Hamburg, 250 bs. (AO tons).

V. M. Hergeant & Co., Str. United States, Christiansand, 600 bs. '75 tons) dry sulphite.

| Patauna Trading Co., by same, 689 bs. (85 tons) dry sulphite.
| Andersen & Co., by same, 6,320 bs. (790 tons) dry sulphite.
| Hutterworth & Co., by same, 680 bs. (85 tons) dry sulphite.
| Price & Pierce, by same, 120 bs. (15 tons) dry sulphite.
| Palla Malomon & Co., by same, Copenhagen, 2,050 bs. (256 tons)

dry sulphite.

11 Helwig, Str. Valisia, Hamburg, 250 bs. (50 tons),

12 Junile, Gottheil & Overton, by same, 250 bs. (50 tons). Valia Halomon & Co., by same, 2,403 bs. (300 tons).

Ira Beebe & Co., by same, 375 bs. (47 tons). Felix Salomon & Co., Str. Aragonia, Hamburg, 2,800 bs. (350

tons). Castle, Gottheil & Overton, by same, 500 bs. (100 tons) dry. Price & Pierce, by same, 480 bs. (60 tons) dry.

Felix Salomon & Co., Str. Vaderland, Antwerp, 530 bs. (66 tons).

AT NEWPORT NEWS

M. Gottesman & Son, Str. Ferndene, Christiania, 1,624 be. (250 tons) woodpulp. Parsons Trading Co., by same, 10,600 bs. (1850 tons) woodpulp. Atterbury Bros., Str. Hoerde, Hamburg, 600 bs. (100 tons)

woodpulp.

AT NEW ORLEANS

Castle, Gottheil & Overton, Str. Hudson, Bordeaux, 328 bs. rags. Salomon Bros., & Co., Str. Craighall, Liverpool, 125 bs. manifa

AT BALTIMORE

Atterbury Bros., Str. Naneru, Hamburg, 110 bs. rags. Castle, Gottheil & Overton, Str. Sloterdyk, Rotterdam, 202 bs. 91 bs. rags.

Castle, Gottheil & Overton, Str. Philadelphia, Antwerp, 247 bs. rags.

Marx Maier by same, 84 bs. new cuttings, 27 bs. bagging 14 bs.

old rope.

Price & Pierce, Str. Christian, 10th, Hamburg, 594 bs. (74 tons) woodpulp. Felix Salomon & Co., by same, 1,875 bs. (234 tons) woodpulp.

AT BOSTON

Atterbury Bros., Str. Anglian, London, 126 bs. waste paper. Castle, Gottheil & Overton, Str. Bulgaria, Hamburg, 152 bs. (19 tons).

Salomon Bros., & Co., by same, 547 bs. rags. Atterbury Bros., Str. Florida, Copenhagen, 600 bs. (100 tons)

woodpulp.
Salomon Bros. & Co., Str. Buffalo, Hull, 582 bs. flax waste.
Castle, Gottheil & Overton, Str. Manitou, Antwerp, 168 bs. bagging.

bagging.

Marx Maier, by same, 184 bs. rags, 140 bs. new cuttings.

Castle, Gottheil & Overton, Str. Cambrian, London, 101 bs.
62 bs. waste paper.

Felix Salomon & Co., Str. Christian, 10th, Hamburg, 1,188 bs.
(143 tons) woodpulp.

Price & Pierce, by same, 1,434 bs. (179 tons) woodpulp.

E. Butterworth & Co., by same, 199 bs. (25 tons) woodpulp.

Parsons Trading Co., Str. Arkansas, Christiana, 200 bs. (25 tons) woodpulp. woodpulp.

AT PHILADELPHIA

J. L. & D. S. Riker, Str. Manchester Mariner, Manchester, 159 bbls. 124 csks. bleaching powder.

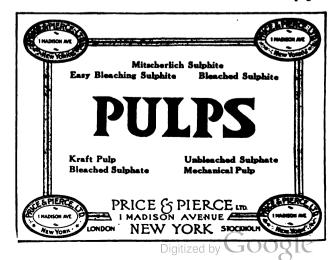
Marx Maier by same, 46 bs. new cuttings.

A. Clegg & Co., by same, 95 bs. cotton waste. Castle, Gottheil & Overton, Str. St. Leonardo, Rotterdam, 141

bs. rags. Parsons Trading Co., Str. Northvalen, Christiana, 320 bs. (40

tons) woodpulp. M. Gottesman & Son, Str. Breslau, Bremen, 750 bs. (125 tons) woodpulp.

Concluded on page 40



Acme Shakeless Deckel Frame Supports



PATENTED JANUARY 31, 1911
All infringements on this patent will be prosecuted

are now in use on

147 Paper Machines

¶ Every one of these Supports is giving satisfaction and saving endless trouble to the paper mill,

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It does away with the slinging of the slice from the motion of the shake, thereby leaving no slice marks in the paper.

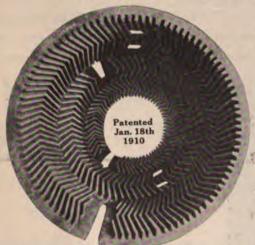
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MECHANICAL ENGINEER, thoroughly acquainted with pulp and paper machinery, to direct the installation of special and patented machinery. Apply "I. P. M. C.," care of PAPER.

Imports—Rags and Paper Stock

Continued from page 38

Continued from page 38

P. Garvan, Str. St. Leonordia, 277 bs. old rags.
Felix Salomon & Co., by same, I,156 bs. (132 tons) woodpulp.
Salomon Bros., & Co., by same, 74 bs. manila waste.
P. Garvan, by same, 43 bs. new cuttings.
Atterbury Bros., St. Minnesota, London, 116 bs. bagging.
P. Garvan, Str. Zuiderdyk, 100 bs. old rags.
The Bergvik Co., Str. Graf Waldersee, Hamburg, 600 bs. (75 tons) woodpulp.
Jessup & Moore Paper Co., by same, 105 bs. rags.
Castle, Gottheil & Co., by same, 500 bs. (108 tons) woodpulp.
P. Garvan, Str. Belgia, 69 bs. new cuttings.
Salomon Bros., & Co., by same, 38 bs. bagging,
Felix Salomon & Co., by same, 967 bs. (121 tons) woodpulp.
P. Garvan, by same, 67 bs. new cuttings.
Price & Pierce, by same, 38 bs. (5 tons) woodpulp.
Atterbury Bros., Str. Kentucky, Copenhagen, 19 bs. bagging.
F. B. Vandergrift & Co., Str. Haverford, Liverpool, 17 bs. waste-

paper. Marx Maier, Str. Manitou, Antwerp, 103 bs. rags, 37 bs. new cut-

Atterbury Bros., Str. Menominee, Antwerp, 206 bs. rags. Atterbury Bros., Str. South Point, London, 45 bs. rags. P. Garvan, bp same, 25 bs. old rags.

J. L. & D. S. Riker, Str. Georgia, Liverpool, 150 cs. 246 csks., 80 bbls. bleaching powder, 25 csks., 50 drs. caustic soda. Perkins, Goodwin & Co., Str. Arminian, Liverpool, 65 csks. china clay. Innis, Speiden & Co., Str. Victorian, Liverpool, 36 csks. bleach-

ing powder. Arnold Hoffman & Co., by same, 51 csks. bleaching powder.

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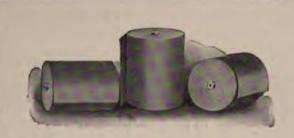
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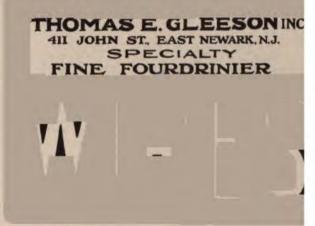
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Valley Iron Works Co., Appleton, Wis.

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Noble & Wood Machine Co., Hoosick Falls,

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Ticonderoga Pulp & Paper Co., Ticonderoga, N. Y.

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(Automatic Micrometer) Schaeffer & Budenberg, Brooklyn, N. Y.

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Hungerford & Terry, Inc., Philadelphia, Pa.

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Harrington & King, Chicago Ill.

FILTERING SYSTEMS Imp. Paper Machinery Co., Nashua, N. H.

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Hill Clutch Company, Cleveland, O.

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Swenson Evaporator Co., Chicago, Ill.

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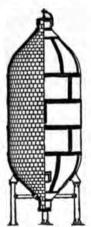
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Scandinavian-American Trading Co., New York.

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LUMBER

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LUMB GOVERNORS
International Process Co., New York.

MILL PAINTS

Hampden Paint & Chemical Co., Springfield
Mass.

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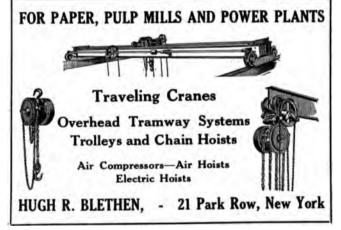
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N. Y.

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Hill Clutcn Co., Cleveland, O.

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Holyoke Steam Boiler Works, Holyoke, Mass

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Wandel Screen Mfg. Co., Walpole, Mass.

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Improved Paper Machinery Co., Nashua,
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West Virginia Pulp & Paper Co., New York.

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STEAM SPECIALTIES Thompson, Richard & Co., New York,

STOCK VALVES Sturgis Machine Co., Sturgis, Mich.

Anderson & Co., J. New York. Rantoul Co., C. W., New York.

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West Virginia Pulp & Paper Co., New York.

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Union Sulphur Co., New York.

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Stebbins Eng. & Mfg. Co., Watertown, N. Y. SUPPORTS

Huband & Nash Co., Menasha, Wis.

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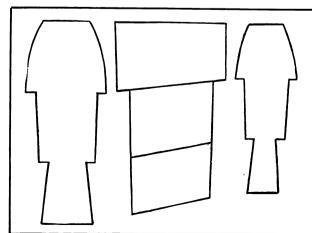
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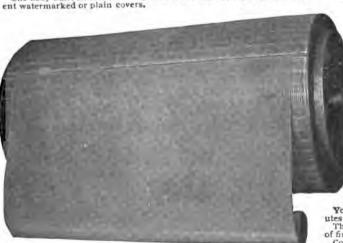
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Vol. X

March 12, 1913

No. 13

PAPER

A Weekly Illustrated Journal of Technical and Industrial Information on the Manufacture, Sale and Use of Pulp and Paper



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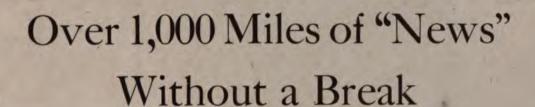
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THE "Puseyjones" Fourdrinier machines at Powell River, B. C., have operated for a solid week without a break in the sheet (except when "washing down").

At 652 feet per minute, each machine produces in a week a continuous sheet that will reach from New York to beyond Chicago.

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for home consumption has been equally great, and must end in their being prohibited for exportation by a heavy duty, if the mother country is to be kept supplied. My tables show that in 1850, there were exported to this country from Great Britain, \$30,000 worth of rags; in 1852, \$54,000 worth, or two and half millions of pounds; and in 1853, \$150,000 worth, or four and one-quarter millions of pounds; while in England alone within the last two years, the increase in the manufacture of paper has been twenty-three millions of pounds, equivalent to a consumption of thirty millions of pounds of rags.

During a late visit to the West India Islands, I had ample opportunities for noticing the abundance of fibrous plants, and testing their qualities for paper making. I allude to the plantain, banana, ochra, aloe, penguin and dagger grass, and others indigenous to the tropics. The adoption of these might answer during a temporary scarcity of rags, but the enormous quantity required, thousands of tons, and their advancing price when once the article is in demand, some of them rising in value in a few weeks over 500 per cent, in their dry state; and plantain, the most productive even reaching \$80 per ton, will preclude their sole use, while some require much labor to collect and bring them to serviceable material for the mills. These lose so much in their preparation, that they cease to be economical, when put into competition with cotton waste, none yielding higher than 35 per cent, and average below 15; while others cannot be profitably bleached, and are fitted only for wrapping papers.

The source of supply of rags to which I would direct attention either of companies or private speculators, is from the contents of the mummy pits, tombs and catacombs of ancient Egypt; and having been commissioned during a former mineralogical investigation of the valley of the Nile, and an exploration of Upper Egypt as far as Mount Zalora, to endeavor to discover the long lost emerald quarries of that region, extending as far as 24° north latitude on the borders of the Red Sea; to report also practically upon this subject, with the facts recent in my memory, I give you the statistical results which I contributed at the time to Lo Spettatore Egiziano, an Italian newspaper, published in Grand Cairo, and there conducted with great zeal and ability under the patronage of the late viceroy, Abbas Pasha.

The quantity of mummies still preserved in the pits and tombs in the valley of the Nile from Cairo to Thebes, and in the crypts located in the Arabian and Lybian chain of mountains, appears almost incredible except to those acquainted with those localities.

Their knowledge of a perfect process of embalming (and which the arid nature of the climate tended so much to assist), arising from a religious belief in the doctrine of metempsychosis, and which probably had its real origin in a hygienic necessity, made the preservation of all the corpses of this great people a legal duty from the earliest period of Egyptian history. Even if we carry back its annals only to the period of Joseph's arrival at the court of the Pharaohs (2028 B. c.) and close them with the birth of Christ, ancient Egypt appears to have figured as a powerful nation over a period of 2,000 years. Her cities and towns were redundant with a population of 8,000,000 souls. There is everything in modern science to justify the belief that the laws of biology in that remote era underwent no change, and that the average length of life as now never exceeded thirty-three years. The population of the valley of the Nile must, therefore, have been renewed

an sixty times during the twenty-one centuries aken as a basis, or in other words, above 00 of inhabitants died and were buried in this fertile land, which combines all the conditions favorable to the rapid development of population.

In assigning this number of mummies to the above period, I have made no reference to those which exist in the districts in the back ground, known by the name of Ethiopia (from Siene to Moro). That country, covered with magnificient ruins, and politically separated from Egypt as an independent State, was, nevertheless, inhabited by a race possessing nearly the same origin, religion, and the same customs as those of the lower part of the basin of the Nile.

Neither have I accounted for a period of at least 500 years which must have preceded the arrival of Joseph in Egypt, which even at that time was covered with magnificent cities, and inhabited by a people highly advanced in the arts and sciences, testified to by the erection of the great pyramid of Cheops or Seamphis, at Memphis, 2120 B. C., and the elegant workmanship in glass, porcelain, enamel and metal pertaining to objects found in the tombs and mummy cases of that period, facts which could only have been the results of a certain numer of centuries of existence. Nor has any calculation been made for the two or three centuries which elapsed after the birth of the Savior, when Christianity having become the religion of the majority of the people, the custom of embalming the dead ceased. There has, therefore, been omitted from this approximate estimate a quantity of mummy cloth, which would be fully equivalent to a third part of the above mentioned amount.

These premises being laid down, there remain certain questions not difficult of solution.

How much of this linen cloth is available for paper manufacture, and what is its make and value above the cost of collecting it?

The quantity and quality used varied with the expense and style of embalming, and during the period of 800 years, of the zenith of prosperity of Egypt. embracing two centuries anterior to the exodus of the Jews, to the invasion of Sabaces 800 B. C., the art of embalming had been carried to the highest degree of perfection, and the finest specimens of mummies and architecture are to be found within that epoch. The former can be distinguished by the gorgeousness of their outer cases, the peculiar wood (sycamore) and the remarkably delicate texture of the linen; and samples of the latter, which I possess from the collection of my late father at Cambridge, and who, enjoying the early friendship of Belzoni, was enabled to procure a small but recherché cabinet of Egyptian antiquities, will bear as much comparison with the finest modern French cambric as the latter does to bobbin lace.

At this period of sepulture it is by no means rare to find above 30 lb. weight of linen wrappings on mummies; one from the collection of Mr. Davidson yielded, when unravelled, nearly 300 yards, and weighed, when bleached, 32 lb. A princess, from the late Mr. Pettigrew's collection, was swathed in forty thicknesses, producing forty-two yards of the finest texture. She was a high born dame, of the royal line of Pharaoh, and it may not be mal à propos here to remark upon a curious physiological fact which I believe few oriental antiquarians are cognizant of, that the mummied daughters of the true house of Pharaoh are to be invariably distinguished from plebian priestesses and belles, by a characteristic natural arrangement of teeth; the four incisors or cutters being replaced by bicuspides in each jaw. This is a proof of their hereditary consanguinity; and it is well illustrated in an elaborately decorated mummy of a damsel now preserved in the library of Trinity College, Cambridge, and whose hieroglyphics identify her as the veritable smuggler of Moses. Other similar

of bitumens, employed in the inferior mummies, could be made equally serviceable for varnishes, illuminating and machinery oils. At the same time the animal remains can be manufactured into soap (they are too dry for glue and gelatin); the alkali or soda necessary for the purpose, existing in abundance in the natron lakes (the nitre of Herodotus), through Lower Egypt, and the bones are convertible into animal charcoal or guano; and it must not be overlooked, that the bijouterie relics and antiquarian curiosities, including the winged orb, a mythological emblem of silver, about the size of a half dollar, which is invariably placed over the embalming incision in the flank of each mummy, would have some nominal, if not intrinsic value, amongst collectors, and their sale would tend much to indemnify any disbursement that it would be found necessary to apply toward further excavations.

It is presumed there would be little difficulty in obtaining the sanction and cooperation of Said Pascha, the present viceroy, who is far more liberal-minded and speculative than the late bigoted and sensual Abbas, or his predecessor, Ibrahim Pasha. The railroad across the desert through the Red Sea must be assisted by the resources of the country, and the projected canal in a similar direction, has already received the warmest political, though not financial support. Moreover it may be predicted as a certainty, that England, anxious to preserve from future contingencies her high road to India through Egypt, will have this country, now under the rule of the sultan, ceded to her as the remuneration of interference in the present war and the cost of capturing Sebastopol, and retain it as a British province; and its first step will be to develop the natural and artificial resources of the country, so eminently fitted for enterprise.

The remnants of mummies alone in the vicinity of the pits on both sides of the Nile would begin to pay already without much searching for whole subjects, and indeed so numerous are they in some localities out of the usual beaten tracks of most travellers, that after the periodical storms whole acres may be seen stripped of the sand, and leaving fragments and limbs exposed in such plenty and variety that the wanderer would be impressed with the idea that he was in the studio of a Frankenstein, in an extensive line of business, and the lamented Warburton expresses with much gusto that "the erratic Frank at his impromptu breakfast, may boil his coffee and cook his kid steak over an aromatic fire kindled with the spiced bosom of an oriental princess."

While in some of the museums of the principal cities of the world we possess such numerous and indestructible records of this great people, we can well spare to employ what is merely a tithe of their relics now rotting in the ground in the manufacture of the important article of paper; and though myself an enthusiastic devotee to archæology in all its bearings, and unwilling to despoil this fascinating science of some of its choicest gems, unless the requirements of the age demand it, I think it not outré on the imagination to predict that a Rousseau, Abelard and Heloise of the next generation may transcribe their amorous epistles on "ivory satin," once the chemisette enveloping the bosom of Joseph's fair temptress, or a sheet of the New York Times be issued on the indestructible shroud of Moses' fairer (Pharaoh) stepmother.

The above statistics as to the supply and value of this material sufficient for demand for many years, are given upon the most correct and lowest basis, and they were endorsed by others, at the period I previously published them, whose opportunities for observation have been far more extended than my own, and I have recorded them in good faith as to the ultimate success of an

undertaking both novel and antiquated in its character; and those who would at the first blush carp at and condemn it as fabulous in its application, may, on investigation, be constrained to admit that in this utilitarian age affected prejudice must give way to the necessities which the mass of society demands; and repulsive as it may appear to the over sensitive, it is entirely shorn of this feeling when viewed with the anticipated famine of paper material looming up in the distance; and I would ask them whether it is not preferable to employ clean and sound linen wrappings from a virgin mummy to the dubious rags collected from the loathsome persons of the lazaroni who swarm the quays of the chief seaports of Italy and Spain, and are equally the pest and annoyance of travellers in the interior, and from which source more than four-fifths of the present raw material for paper is obtained.

The various dates I have given on the most approved authority of Scriptural and Oriental research. Considerable discrepancy may be observed between these and the dates assigned by those who accept the Septuagint version of the Scriptures, but I have preferred to gather the crumbs fallen from the chronological tables of those luminaries, whose names are as eminent in the pages of theology as they are in the annals of antiquarian lore.

Process for Metallized Fibers

In a recently published patent for the production of metallized fibers, films and fabrics (Eng. Pat. 25,534, Nov. 16, 1911), the fibers or films produced in the ordinary manner from cuprammonium solutions of cellulose are immersed in an acid solution of titanous sulphate which effects the reduction to the metallic state of the copper compounds contained in them. Alternatively the cuprammonium solution of cellulose may be coagulated in the form of threads or films by injection into an acid solution of titanous sulphate, which then serves as a combined coagulating and reducing agent. Fabrics, fibers or yarns also may be coated, either locally by printing or entirely, with a cuprammonium solution of cellulose and the metallic copper deposited as described. The precipitated copper in any of the above cases may then serve as a basis on which other metals, such as silver or gold, may be deposited by electrolysis or otherwise. The metallic deposit may be burnished by friction or pressure.

New Fabric for Papermakers' Felts

French patent No. 447,299, granted to M. J. Dordet, a resident of France, covers a fabric for drying felts, consisting of a weft of wool and a warp of cotton. The weft shows only on the outer side, the warp only on the inner side which is in contact with the dying cylinders. This fabric offers notable resistance in the direction of movement, because the warp, which it will be evident, dries rapidly, prevents rotting.

It is desirable that the cotton warp should be a twist, so as to prevent its elongation. To reduce the first cost, a proportion of cotton may also be introduced in the

Finally, to further straighten the felt in the direction of its movement, a steel-wire element might be introduced in the warp.

Practical Suggestions

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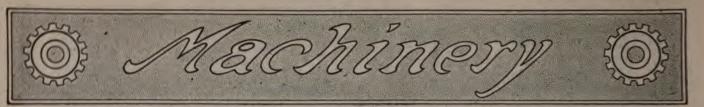
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Loss Due to Irregularity of Drive

IN the paper industry two main losses occur, due to irregularity in speed of the paper mill engine.

The first is the reduction in output, and the

second the reduction in quality.

To illustrate the first, make the supposition that a machine is being run at maximum speed at which paper can be properly formed without breaking; this, in a plant driven by an engine having a 5 per cent speed variation, in which case the mean speed has to be fixed, so that the maximum rarely, if ever, causes a break. This would give us a mean speed of $2\frac{1}{2}$ per cent below the maximum. If the maximum variation could be reduced to 2 per cent, we can evidently, without passing maximum speed, increase the mean speed by $1\frac{1}{2}$ per cent, which in the case under supposition would give the increased output of a like amount—i. e., $1\frac{1}{2}$ per cent.

The second loss; namely, reduction in quality, refers to the variation in weights, due to variation of speed. It can be illustrated by the results obtained in a Canadian news mill as shown by the diagrams published herewith, read in connection with tabulation of weights of samples of paper made before and after the alteration

in governing.

The accompanying record is taken from Engine No. 1, but the results obtained from Engine No. 2 were almost identical, as demonstrated by the tabulation of weights.

Engine No. 1

	E	ngine No. 1		
Before		After		
Sept. 25, 1912	60½ 63 64 61 71 63½ 63	Oct. 22, 1912	61 64 63 62 63 64 62 64 63	
	E	ngine No. 2		
Oct. 9, 1912	65 66 59 67 59½ 60 64 63 66	Oct. 22, 1912	64 63 64 65 64 65 63 63	

No mill manager should take the position that the regulation of his engine is so much superior to the results indicated of engine performance before new governing system is applied that there is not room for improvement. As a matter of fact, the Lumb System of Governing, which effected the improvement, described and illustrated herewith, has been built up almost entirely in the cotton and woollen textile industries of Lancashire and Yorkshire, in which industries the power plants are acknowledged to have been developed to a very high point of efficiency and with average teadier loads and more even speed than any other astry in the world. Notwithstanding this fact,

during the past three or four years not less than fifty of the principal spinners have had Lumb System of Governing attached and secured an increased output corresponding to one hour per week or approximately one week per year without any increase in operating expense, but a decided increase in quality and evenness of product.

of product.

It is undoubtedly true that engine manufacturers put standard or stock governors on their standard engines, and it is not uncommon to find in what are considered

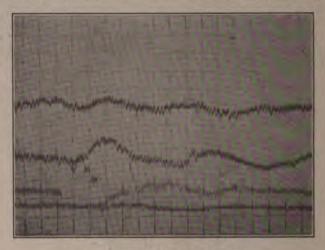


Fig. 1—SPEED VARIATION RECORD

The tracing shows the variation before alterations. Each vertical division represents a variation of 5 per cent. One horizontal division equals a period of five minutes.

first class plants, engines in which governors are actually working against the momentum of the reciprocating parts. Good governors are often rendered inefficient by being badly connected to the trip motion or that the trip motion is not suitable or not properly arranged.

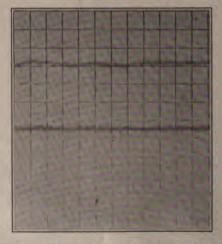


FIG. 2-SPEED VARIATION RECORD AFTER ALTERATIONS

The Lumb Speed Regulator is suitable for use with all makes of engines with Corliss valves, piston drop valves, automatic cut-off, throttle valves or turbines. It is of a type that lengthens or shortens the controlling rod to suit the requirements of the load on the engine,

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Marin Merca / Herry Maria

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market for several years, but a new type of motordriven machine will undoubtedly interest most of our

The special advantages of the electric motor driven Revolvator are that loads can be raised at a much higher speed than by hand, and that heavier loads (up to 2 tons) can be elevated.



REVOLVATOR FOR DIRECT CURRENT, 500 VOLTS

This machine is provided with an automatic overtravel limitation device, which automatically brings the platform to a stop before reaching the top of the uprights. The motor is operated by means of a simple



TIERING BALES IN A CORDAGE MILL WITH AN ELECTRIC REVOLVATOR

controller box, having three positions for the handle, namely, "Down," "Off," "Up." When thrown to the "off" position a brake is automatically applied, so that the platform is held stationary without creeping.

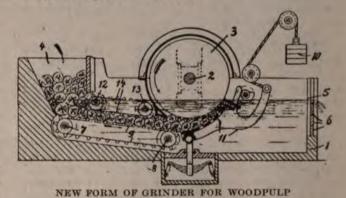
A special device is provided so that the operator need not be near the controller box to operate the machine but can run the platform up or down from any position. This is of great advantage as the man at the top of the tier can adjust the position of the platform to a nicety, so that the removal of a load is an easy matter.

All motor driven Revolvators have a patented floor locking device, giving four widely separated points of support, making the machine rigid on the floor and locking it so that it will not move when loads are being handled. The upper part of the machine swings around on its own center, like a turntable, on ball bearings working in carefully ground races, while the lower half of the base remains stationary on the floor.

The electric driven revolvators are furnished with any standard type motor for operating on any commercial circuit, being designed to meet each individual set of conditions and are furnished complete with necessary starting boxes.

New Submerged Grinding Apparatus

In a German patent, granted to M. A. Biffar, Leipzig, on a new form of grinder for wood, the vertical grinder 3, carried by shaft 2, which rests on springs or weighted levers revolves at a certain depth in a long trought 1, into which a stream of water is kept constantly flowing at a certain level.



To the left of the grinder is a magazine 4, to contain the wood to be ground while at the right, an overflow 5, maintains the water level at the desired height. Under the magazine 4 is a conveyer 9, consisting of belts or chains revolving around cylinders 7 and 8 which receives the wood and carries it under the revolving grinder.

Woodpulp, Paper, and Cardboard in Uruguay

One paper mill is in operation in the Republic of Uruguay which utilizes a limited quantity of woodpulp, most of which is imported from Norway. Wrapping paper is the only class manufactured.

About 3,000 tons is the estimated quantity of paper used by the newspapers annually, one-third being for the interior towns. American newsprint paper is being shut out of the Uruguay market owing to the preferential freight rates from Europe, recently inaugurated, whereby the American producer is required to pay from \$3 to \$4 a ton more for paper shipped from New York to Montevideo, than his competitors pay on similar goods from Europe. Unless this difference is adjusted, the American paper trade with the Republic of Uruguay, so happily begun, is doomed.

Efficiency Methods in Manufacture

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THE REPORT OF THE PARTY OF THE

PAPER

A Weekly Illustrated Journal of Information on the Manufacture, Uses and Sale of Pulp and Paper

\$5 A YEAR IN ADVANCE

25 CENTS A COPY

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MARCH 12, 1913

No. 13

The Merchants' Association and Section 2

HEN the McCall Bill, otherwise known as the Reciprocity measure, was pending before the Federal Congress in Washington, a resolution pertaining to it was adopted by a membership vote of the Merchants' Association of New York, on or about the 4th day of April, 1911, which ran as follows:

That the Merchants' Association of New York approves and commends the action of the administration in negotiating the agreement so transmitted to Congress and urges upon Congress the speedy ratification thereof, to the end that more friendly trade relations between the United States and Canada may be established at the earliest possible moment, that commerce between the two countries may be increased, and that the cost of the necessaries of life may be diminished, all to the benefit of the people of both countries.

No particular protest was made at that time by the paper manufacturers, who more than any other class of Americans were imperilled by the proposed legislation, although there was not the slightest question among them as to the injustice to their industry in the contemplated action.

Later, when Canada by a vote of her people rejected the measure, and when the authorities at Washington saw fit, in spite of the failure of all the provisions of the bill which called for any concession whatever on the part of the Canadians, to forthwith declare Section 2, granting free entry of pulp and paper from Canada, effective, it was thought that, while the Merchants' Association might from its point of view have been justified in supporting the entire bill, it would nevertheless see the injustice of making Section 2 operative

without any reciprocal consideration whatever from Canada.

Some of our paper manufacturers who are members of the Merchants' Association accordingly brought the matter to the attention of its officials, hoping and believing that under the changed conditions further action might be taken by the association expressing its disapproval of the provisions of Section 2, now no longer a part of the general reciprocal measure.

The matter was referred to the Committee on Foreign Trade of the Merchants' Association, which at a meeting held on February 13, 1913, declared its attitude toward the subject by the adoption of certain resolutions then spread upon the minutes.

After a somewhat lengthy introduction, setting forth the history of the measure and the action taken previously by the Merchants' Association, and after quoting the provisions of Section 2 which became effective July 26, 1911, the Committee proceeded to say:

And whereas, since that time export licenses or taxes formerly imposed, have been, by some of the Provincial Governments repealed, Now, Therefore, it was

Resolved that, in principle, Section 2 of an Act entitled "An Act to Promote Reciprocal Trade Relations," etc., carried out the recommendations of President Taft in his special message of Jan. 26, 1911, and the agreement between the Canadian Ministers and the Secretary of State, as set forth in their correspondence and in the schedules annexed thereto, and that this question has already been passed upon by the Merchants' Association, by a membership vote; and it was further

Resolved that Section 2 of the aforesaid so called Canadian Reciprocity Act taken by itself, and separate from the President's message, the correspondence between the two countries and the debates in Congress, amounts strictly to a Tariff Schedule or rate, and that it has always been the policy of this Association not to take any specific stand upon such a question; and it is further

Resolved that this Committee recommends to the Board of Directors of the Merchants' Association, that no action be taken by the Association with reference to the repeal of Section 2 of the socalled Canadian Reciprocity Treaty.

It is putting it lightly to say that we are greatly surprised at this expression, which is so utterly inconsistent with the previous action of the association and manifestly based upon an ignorance or disregard of the true situation.

The statement that since the passage of the McCall bill export licenses or taxes formerly imposed by the Canadian government have been repealed by some of the provinces is absolutely erroneous. As we have endeavored to show from time to time there has not been a single concession made by any of the provinces which operates as a release of the Canadian wood in such a manner that it may be purchased and shipped to the American mills.

For the purpose of enabling the Canadian producer of pulp and paper to claim the benefit of free entry, the government has undertaken to remove its restrictive regulations from the particular wood that is used by the

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THE WEEK'S LATEST TRADE NEWS

Rulings on Canadian Pulp and Paper

Under date of March 5, Secretary Charles F. Moore of the American Paper & Pulp Association has sent out to members the text of three separate decisions of the Treasury Department at Washington, setting forth conditions under which woodpulp, paper and paper board may be imported from Canada free of

The first order to collectors of customs (T. D. 33108) instructs The first order to collectors of customs (T. D. 33108) instructs them to continue to collect duty on pulp, paper and paper board manufactured from wood cut on Crown lands in Quebec, not-withstanding statements in shippers declaration on invoices made by virtue of the order in council of December 31, 1912.

The second order in relation to the requirements for free entry of Canadian woodpulp, paper and paper board, under Section 2, act of July 26, 1911, amended, was printed in full on page 27 of Paper for March 5.

The third order, ruling or decision of the department, in con-

The third order, ruling or decision of the department, in contained in the following note addressed to the Collector of Customs at the port of Detroit, Michigan, under date of February

28, 1913.

I have to acknowledge the receipt of your letter of the 21st instant, in which you state that the Spanish River Pulp & Paper Mills, Limited, is claiming the right, by virtue of an agreement with the government of Ontario, dated November 25, 1912, a copy of which you transmit, to state in its declarations on invoices that the wood from which the pulp or paper was manufactured, although cut on Crown lands, is free from all restrictions of manufacture, experted, etc.

The said agreement purports to remove all prohibition and restrictions against the exportation of wood cut on the lands therein described upon the conditions that the said company shall equip and continuously operate a specified number of paper machines; that it shall manufacture at least a specified quantity of pulp and paper; and that it shall employ at least a specified number of hands in the cutting of wood and in the operation of its pulp and paper mills in Ontario.

In the opinion of the Department the effect of the agreement is quartical death; increase a restriction of the exportation by

in question clearly imposes a restriction of the exportation, by contractual relation or otherwise, upon the wood used in the manufacture of the imported pulp or paper within the meaning of Section 2 of the Act approved July 26, 1911, entitled "An Act to promote reciprocal trade relations with the Dominion of Canada, and for other purposes."

Act to promote reciprocal trade relations with the Dominion of Canada, and for other purposes."

Consequently, the pulp and paper manufactured from such wood is not entitled to entry free of duty. You will therefore liquidate all pending entries upon the basis that all pulp or paper covered thereby which was manufactured from wood cut upon Crown lands in the Province of Ontario is dutiable under the appropriate paragraphs of the Act of August 5, 1909; and you will reliquidate, upon the same basis, all earlier entries, which have been made within one year prior to the date hereof.

win renquinate, upon the same basis, all earlier entries, which have been made within one year prior to the date hereof.

In the case of pending entries with respect to which the declarations upon the invoices do not state specifically whether or not the wood from which the pulp, paper or paper board was made was cut on Crown lands, with the percentage thereof, if any, you will collect estimated duties upon the whole shipment, as if it were all made from Crown land wood and suspend liquidation of the entry pending the production of evidence showing the percentage of such wood, if any, used in the manufacture of the merchandise; and in the case of entries already liquidated you will in like manner suspend the final reliquidation pending the production of such evidence, provided that in no case shall such suspension operate to extend the final reliquidation beyond one year from the date of the original entry.

Respectfully, (Signed) J. F. Curtis. Assistant Secretary.

TREASURY DEPARTMENT. Washington, D. C.

Briggs is Superintendent not Boyer

Through a misunderstanding Joseph Boyer was named in the Convention number of PAPER as the superintendent of the Aldrich Paper Company mill at Natural Dam, N. Y. Mr. Boyer is a machine tender in the mill and the superintendent is Frank A. Briggs, to whom we owe this explanation, which is gladly given.

New Equipment of Fiber Development Mill

[SPECIAL TO PAPER]

APPLETON, Wis., March 10—Superintendent W. H. Goodenough of the Inland Empire Paper Co., Spokane, Washington, who has been in Appleton for some little time past cooperating with the Fibre Development Company in the preparation of the plans for the company's new paper mill will leave for the west tonight, taking with him a complete set of working plans for the new enterprise, and prepared to begin construction work immedi-

several machinery contracts were awarded last week from the office of the Fibre Development Company. They were for: Two Wickes boilers of 300 hp. each at 200 lb. of steam, fitted with the induced draft system and economizers of the Green Economizer Co., and boiler feed pumps made by the American Steam Pump Co., the last named from their agent J. L. Hill of Menasha; a variable-speed engine for the paper machine from the Rall Engine Company.

the Ball Engine Company.

Donnacona Plant Nearing Completion

[SPECIAL TO PAPER]

WATERTOWN, March 10—According to Engineers Eaton & Brownell of this city, the plant of the Donnacona Paper Company being constructed about fifty miles up the St. Lawrence river from the city of Quebec at the junction of the St. Lawrence and the Cartier rivers, will be completed and ready for operation about the first of the coming year. It will be known as a fifty-ton mill, it being intended to have but one machine at the beginning, though the mill will be constructed so that others may readily be mill, it being intended to have but one machine at the beginning, though the mill will be constructed so that others may readily be added later. The wood mill will have a daily output of seventy-five tons of ground wood and will be equipped with twelve grinders. The mill will be of fireproof construction, being made of concrete, steel and brick. The greater portion of it will be two stories in height, while other portions will be but a story in

The paper machine will be constructed by the Bagley & Sewall The paper machine will be constructed by the Bagley & Sewall Company of this city and will have a width of 160 inches and a speed of 700 feet per minute or over a mile of paper every eight minutes. Work is now being carried on upon the foundations of the plant and upon the dam, which will be of the Ambursen type, 1,200 feet in length and thirty feet in height. From it to the power plant will be a penstock 1,800 feet long and fifteen feet in diameter, carrying a sixty foot head. About 6,000 horsepower will be developed for the operation of the mammoth plant.

As soon as the weather permits work will be rushed and it is expected that the mill will be finished by the end of the year. Charles E. Eaton, the designer of the mill, is now spending a large portion of his time on the scene and has a corps of engineers engaged there all of the time supervising the work.

engaged there all of the time supervising the work.

The machine room will be 52x275 feet; the finishing room, 52x100 feet and the beater room 56x125 feet. The wet room will be 42x125 feet and the grinder room 50x125 feet. The wheel house will be 27x125 feet and the generator room, 27x44

BLACK RIVER.

The Value of an Eye in Wisconsin

[SPECIAL TO PAPER]

APPLETON, Wis., March 10—In deciding a point brought up under the workmen's compensation law of Wisconsin, the state under the workmen's compensation law of Wisconsin, the state industrial commission last week, made a ruling placing the value of an eye at 15 per cent of a man's working capacity, holding that injury or loss of an eye incapacitated a man for labor to that extent. As a result of this ruling the commission ordered one company to pay 98 cents a week for fifteen years to one of its employees, and another company \$1.13 a week for fifteen years to one of its employees, in each case for the loss of an eye, as compensation under the law.

compensation under the law.

Many Wisconsin manufacturers, while believing thoroughly in the justice and desirability of a workman's compensation law, believe that such a law should be a Federal law rather than a State law, in order that the burden of it may fall upon an entire industry, rather than upon such parts of the industry as happen to be located within the borders of certain States which have

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At Work on Plans for Wright Paper Mill

[SPECIAL TO PAPER]

DAYTON, O., March 10-The architect is now busily engaged on plans and specifications for the proposed new mill to be conon plans and specifications for the proposed new mill to be constructed by the Wright Paper Company in Middletown. The negotiations for the purchase of the two tracts of land lying just east of the cemetery adjoining the city and along the south line of the Big Four switching tracks near the Shartle Brothers' Machine Company's plant, have just been closed by Charles E. Daley, who will be represented in the company, and Attorney Benjamin F. Harwitz.

These two tracts embrace about seven acres. They belonged

These two tracts embrace about seven acres. They belonged to John Meehan, who owned one consisting of about four acres, to John Meehan, who owned one consisting of about four acres, and Matthew Leonard, who owned the second tract, consisting of about three acres. Both were conveyed by deed to the Wright Paper Company. It is the plan of the company to erect a mill that will embrace all the modern innovations that have been recently contributed to the papermaking industry as the result of scientific research. The engineer has been actively engaged during the past few days extending his lines and locating the tract as the deed sets out. It is anticipated that the new plant will be one of the most complete in the Miami Valley. It will give employment to two hundred men. The plant that was to have been erected on the rear of the lots back of Main street by the P. A. Sorg Paper Company has been abandoned as this company is interested in the building of the new mills that are to be constructed under the supervision of the Wright Company. pany.

NOTES OF INTEREST TO MIAMI VALLEY WORKERS

In the matter of the Hyde Park Felt Roofing Company, of Cincinnati, Judge Hollister made an entry Thursday confirming the report of Receiver William C. Lambert and allowing compensation to Harry Molloy and Joseph Durban in the sums of \$48 and \$16, respectively, for labor performed for the receiver and awarding compensation to the receiver in the sum of \$4,336. In the case of the Ohio Automobile Company, of Miamisburg, against Herbert G. Catrow, a director and stockholder in the Ohio Paper Company, of Miamisburg, judgment in the sum of \$330.75 was allowed the plaintiff by Judge Martin in the Common Pleas court last Tuesday. The suit for \$200 brought by John B. Hornberger against the Ohio Automobile Company was settled and dismissed through entry.

Both parties agreeing, the \$15,000 damage suit instituted in

Both parties agreeing, the \$15,000 damage suit instituted in the local Common Pleas Court by Steve Sze, a foreigner, against the Seybold Foundry Company, manufacturing paper mill machinery, was settled and dismissed on Thursday. Sze asked for damages for personal injury alleged to have been received at the defendant company's plant. The basis for the settlement has not been appropried. has not been announced.

BLACK-CLAWSON ADOPTS STATE INSURANCE

Considerable interest attaches to the announcement made Wednesday to the effect that the Black-Clawson Company, of Hamilton, one of the largest manufacturers of paper mill machinery in the country, had taken over the State plan of liability insurance and would hereafter operate under that system. This plan has been in vogue in this State for about two years and while it has been adopted and found satisfactory by quite a large number of the largest institutions in the State, there are others who cling to the private insurance. The recent measure enacted by the State legislature made it imperative that all employers of more than five persons insure in some manner, but left it optional to choose whether or not the State plan or the system advanced by the private insurance companies be adopted. The Champion Coated Paper Company, of Hamilton, was one of the first manufacturing concerns in the State to adopt the State plan. It found the plan satisfactory and recently was reinsured under its provisions. under its provisions

William L. Voight, son of the late Lewis Voight, sr., of Cincinnati, a wealthy wallpaper manufacturer, filed an answer in the probate court Thursday, to the suit of Susanna M. Voight, widow of the late Lewis Voight, to sell the property to pay the debts and legacies of the estate. He denies that it is necessary to sell this property to pay the debts, setting forth that the personal property is ample to pay all the valid claims against the estate and he declares that the schedule filed is not a true statement of the assets and liabilities of the estate. Voight further declares that the property, which it is sought to sell, is very valuable and that the value is increasing, while if it is sold now under the court order it will be transferred at a sacrifice. As one of the heirs he declares that he is willing to give a bond for the William L. Voight, son of the late Lewis Voight, sr., of Cinof the heirs he declares that he is willing to give a bond for the payment of all the just obligations of the estate in order to prevent the sale. Former Judge John G. O'Connell and Attorney Robert O'Connell represent William L. Voight.

STATUTE OF LIMITATIONS FAVORS SORG ESTATE

While an entry of dismissal of the case of William Fetzer against Mrs. Jennie Sorg, widow of the late millionaire paper

manufacturer, Ada Sorg-Drouillard, a daughter of the late manumanufacturer, Ada Sorg-Droumard, a daugated in progress facturer and others, a controversy which has been in progress facturer and others, a controversy which has been in progress facturer and others, a controversy which has been in progress. facturer and others, a controversy which has been in progress for a number of years, has apparently reached an end. The case was in the United States Court at Cincinnati. Prior to four years ago, the parties to the suit were interested in the Sherry Manufacturing Company, whose plant was located at Middletown. Later it was reorganized under the name of the William Fetzer Company. Shortly after the reorganization, Fetzer decided to remove the plant from Middletown. The defendants to the suit objected and, it is alleged, had Fetzer arrested, charging that he was removing machinery which was not his property. Following the arrest Fetzer brought suit against the Sorgs in the state court for false arrest. This case was carried to the Ohio Supreme court and that court held in Fetzer's favor. In the meantime Fetzer removed to Illinois and after favor. In the meantime Fetzer removed to Illinois and after the Supreme Court had passed on the case, he instituted the suit in the local Federal Court to recover the damages awarded him in the Supreme Court. The suit was dismissed by Judge Hollister upon the application of the plaintiff. It is understood that the suit is barred by the statute of limitations.

March 12, 1918

STATUS OF THE CHAMPION COATED TAX CASE

The motion that has been filed by the county for a new trial in the case of the Champion Coated Paper Company against Butler county, a suit to restrain a tax collection, will be argued before the Court of Appeals in the Cincinnati court next Wednesday. This case involved the right of the county auditor arbitrarily to increase the valuation of the plant of the Champion Coated paper company for taxation purposes and that of the country treasurer to collect the taxes upon this basis. It has attracted widespread attention. In the event the motion is overruled it will be taken before the Supreme Court. The valuation of the property was increased by the county auditor in the sum of \$1,000,000. \$1,000,000.

OHIO'S CANAL SYSTEM

The canal system of Ohio has been reviewed during the past week by the Ohio Department of Agriculture. This review covers the history of the Miami and Erie Canal, which extends through the Miami Valley from Cincinnati on the Ohio river to Toledo on Lake Erie. It furnishes the natural connecting link between the Ohio River and the Great Lakes, and it was argued in the course of the report that, with the completion of the Panama Canal, the deepening of the Ohio and Mississippi rivers will increase by leaps and bounds. The United States government is now at work on a survey of the projected canal connecting Toledo with Chicago and this will connect with the Miami and Erie canal at Defrance, Ohio. It is also argued that, inasmuch as water transportation is at once the best and cheapest method, the rehabilitation of the canal system of Ohio is greatly to be desired. No class of manufacturers throughout the state to be desired. No class of manufacturers throughout the state is more earnestly awaiting the time when this can be accom-plished than the paper and paper box manufacturers, who have been vigorously opposing the movement looking to the abandon-ment of the Miami and Krie Canal for a long period of years.

Paper Mill Property in the Market

The mill property owned by J. H. Walker and located at Burnside, Conn., is being offered for sale by L. B. Garfield, trustee, 261 Broadway, New York. The mill is equipped with two Fourdrinier machines and is suitable for making fine writings and specialties. The buildings are all built of brick, stone and iron. There are also three dwelling houses and a barn and and iron. There are also three dwelling houses and a barn and all of these structures, inclusive of the general mill equipment, are in good condition. The mill has good shipping facilities. Mr. Garfield invites a general inspection of the property and mill and will be glad to furnish prospective bidders with an further particulars not mentioned in his advertisement which appears on page 38 of this issue of PAPER.

No Decision in Union Bag Suit

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SPECIAL TO PAPER

TRENTON, N. J., March 8—Argument was heard today Chancellor Edwin Robert Walker for the appointment of ceivers for the Union Bag & Paper Co. The application made by Sarah S. Aldrich and other stockholders. Decision

The company had, according to affidavits presented to the court, net earnings of \$540,715.82 in 1912 and a surplus of \$1,571,833.13. After deducting all interest, sinking fund and depreciation charges there were actual profits of more than \$50,000.

Flooring Gives Way in Wallpaper Plant

[SPECIAL TO PAPER]

YORK, PA., March 8—Damages amounting to several hundred dollars were caused this week at the plant of the York Haven Paper Company, York Haven, when the flooring in the storage room, formerly the bag mill, broke and several carloads of rosin, alum, iron fittings, paper coloring and paper stored in the warehouse were dumped into the race underneath. The accident was not discovered until an employee walked into the bag mill and noticed that the floor had given away. It is supposed that it occurred some time between midnight and 5 d'clock the next morning. The accident, it is believed, was due to the building being overloaded. A space of the floor 50 feet by 30 feet was broken through and the contents dashed into the race. The damage to the building alone amounts to several hundred dollars. Employees were immediately put to work in an effort to save all materials and machinery possible. The heavier articles were pulled from the race by a horse and tackle.

The ice that had jammed in the race at the York Haven Paper mill broke up this week and moved out into the Susquehanna river. A number of men were kept busy continuously keeping the ice from jamming into the large turbines.

The policy of the York Card and Paper Company in excluding negroes from the various departments of its plant has been broken and its doors have been opened for the employment of that class of labor. This concern is one of the three large wall-paper manufacturing plants in this city.

The several roofing and building paper manufacturing plants in this city are unusually busy and all of the mills are working extra time to get out the large orders on hand. The approach of spring and the healthy condition of the harket is due to the increased activity in the York mills. The plants are working to their fullest capacity and the available facilities are being taxed to the utmost.

The plant of the York Sheathing mills, West College avenue

to their fullest capacity and the available facilities are being taxed to the utmost.

The plant of the York Sheathing mills, West College avenue and the Northern Central railway, is being operated with a day and night shift and an average of about 70 tons of building paper are shipped from the plant every week. The mill has been operating day and night since the present firm took charge of the plant about eight months ago, and the indications are that these prosperous conditions will continue for some time.

An addition is being erected to the office building of the General Roofing Manufacturing Company in order to accommodate the increased business of the company. The interior of the present office is also being remodeled. The plant is working day and night and heavy shipments of roofing paper are being made daily to all parts of the country.

The mills of the Keystone Roofing Company, Schmidt & Ault Paper Company and the Eastlack Manufacturing Company are also very busy at present and heavy shipments of roofing and building paper are being made.

SLATE COVERED SHINGLES-A NEW ROOFING MATERIAL

The General Roofing Manufacturing Company has begun the manufacture of slate covered shingles, along with its asphalt covered shingles and its general line of roofing papers. The first specimens of the company's new product were completed this week and so successful was the experiment that the local concern has decided to engage in the new departure on a large scale.

This latest type of roofing material is made upon a foundation This latest type of roofing material is made upon a foundation of tarred felt, coated on the weather side with a thick covering asphalt, into which is pressed crushed slate, making it somewhat thicker than the ordinary wooden shingle, much more substantial and fireproof. These shingles will be made in a variety of colors. The company also expects to soon add asbestos covered paper shingles to its regular output.

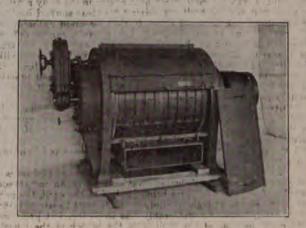
The new type of shingle can be placed on the roof in the same manner as the wooden shingle, there being no cracks or crevices where the shingles are placed side by side, for each one is of the same size and uniform throughout. Cold and hot weather will not affect them.

not affect them.

The business done by the General Roofing Manufacturing Company last year was enormous and its products are sent to all parts of the world. Agents of the company are now in South America and Europe spreading the zone of business at a rapid rate. This company operates a number of other large plants throughout the United States.

Louis Dejonge, jr., son of the founder of Louis Dejonge & Co., manufacturers of coated papers, 73 Duane street. New York, died at San Remo, Italy, on Friday, February 28, at the age of fifty-four. He had been actively connected with the paper industry for twenty-five years,

"IMPROVED" CENTRIFUGAL SCREEN



""Improved" Centrifugal Screen Design No. 3

Our Screen is a Success

GROUND WOO

SULPHITE KRAFT

LET US PROVE IT TO YOU NOW

CORRESPONDENCE A PLEASURE

Improved Paper Machinery Co. NASHUA, N. H., U. S. A.

Sherbrooke Machinery Co., Ltd. Sherbrooke, Que.

device - some her life

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The Future of the Diesel Engine

[SPECIAL TO PAPER]

WATERTOWN, March 10—Concerning the Diesel engine, a type of which is being manufactured by the New York Engine company of this city, John L. Bogert, consulting engineer of the Company, makes the following statement.

"The arrival of the motor ship Eavestone in the port of Savannah, Ga., has occasioned so much comment and excited so much

nah, Ga., has occasioned so much comment and excited so much interest that it would appear to be timely to go a little into the history of this new power that is soon to be reckoned with in the transportation of freight by water.

"Dr. Rudolph Diesel, of Germany, applied for patents on a new kind of internal combustion heat engine in the early nineties, and the first engines built embodying his ideas showed by their remarkable economic results that in that direction probably lay the heat engine of the future. Dr. Diesel's engine differed from the Otto engine that has come into extensive use since its advent in 1876 in that it was not a true explosive engine like the Otto, but an engine in which the fuel burned gradually instead of instantly. In this departure from established practice he was but following in the steps of those who had perfected the modern breech-loading cannon.

modern breech-loading cannon.

modern breech-loading cannon.

"Fifty years ago, in the days of cast iron cannon, the powder used was of such a size of grain that the explosive pressure rose to the greatest height before the shell or shot had started appreciably in the bore of the cannon, and its force was spent before the shot had left the muzzle; the explosion was too instanteous in its action and not sufficiently prolonged.

"All that is changed in the modern ordnance; the powder is so compounded and so fabricated that instead of an instanteous impulse of immense pressure being applied to the shell, the powder burns slowly enough to apply a much more nearly constant accelerating force of considerably less intensity, but prolonged during the passage of the shell from the breech of the muzzle. It is precisely that same difference that exists in comparing the Diesel engine with the ordinary gas engine, such as we daily see driving automobiles, motor boats and power plants, where the fuel is gas or gasoline. All these latter are rightly called explosive engines. The well known device called a carburetor is intended to form an explosive mixture of gasoline and air and is a intended to form an explosive mixture of gasoline and air and is a

fuel is gas or gasoline. All these latter are rightly called explosive engines. The well known device called a carburetor is intended to form an explosive mixture of gasoline and air and is a good or poor piece of apparatus, just in proportion as the mixture it furnishes to the engine is truly explosive or non-explosive. The same is true of the mixing valve of any gas engine.

"The properly designed, well built Diesel engine never has an explosive mixture of air and fuel at any time within its cylinder, but the fuel used, which is what is left of crude petroleum after the valuable gasoline and kerosene have been distilled out, is burned gradually but completely, while the piston is moving out on the first part of its power stroke. This burning is so controlled that the pressure against the piston is maintained constantly during the early part of the power stroke and never rises above a predetermined amount.

"The engine of the motor ship Eavestone is a Diesel engine; it differs in the manner above set forth from the engine of your automobile, your motor boat or the gas engine that drives the machinery in your factory or mill. We come now to the question of economy of fuel, for upon the economic efficiency of any prime mover depends its future. The value of any particular fuel depends upon the quantity of heat its combustion can give out, and naturally the more heat a given weight of fuel can give out the higher price one can afford to pay for it.

"That is what makes petroleum so valuable as a fuel for vessels going on long voyages, for weight petroleum contains 50 per cent more heat than coal; 1,000 tons of coal in her bunkers.

"Now to properly understand just what promise the future holds in store for the Diesel engine when driving vessels you must ponder on the following figures: A first class modern triple expansion steam engine will deliver one horsepower to its propeller shaft for one whole hour for every pound and a half of good coal burned on the grates of its boilers. In the Diesel engine precisely th

iority over the coal-burning high grade steamship. In certain parts of California fuel oil sells for \$4.50 a ton and coal for \$10 a ton. Very much the same price for oil ought to obtain in the ports of Mexico and Texas. There are many other parts of the world where oil can be bought at prices that compare favorably with coal, weight for weight.

"That is by no means the only respect in which the economic efficiency of the Diesel engined motor boat surpasses that of the most up-to-date steamship. A steamship must carry boilers as well as engines and these boilers necessitate coal trimmers, firmen and water tenders.

men and water tenders.

"These men cost money for food and wages, and as they are not needed on a Diesel engined motor ship, their cost is saved. But there is still another most important advantage to be credited to the oil motor ship. Coal bunkers must be located above the fire room floor in the steamship, and hence, they as well as the boilers, occupy valuable cargo space that in the case of the vessel carrying bulky cargoes might be otherwise earning additional freight money. All this space is cargo carrying space, since the oil motor ship has no boilers and carries its oil in a double bottom. double bottom.

double bottom.

"I will conclude by reciting the experience of the East Asiatic Company of Copenhagen, which had built this year three oil motor ships of 10,000 tons displacement each, to trade between Copenhagen and Bankok in the Far East. The first one of these ships to take her place on the line was the Selandia, and she has now completed two round voyages to the East and back, surpassing the same company's best steamships in the shortness of her trips, the distance out and home be ng 23,800 knots. She stops at sixteen ports, she has met every kind of weather, and because fuel oil is cheaper in the Far East than in Europe, she takes in her double bottom to take her from Bankok to Copeahagen and back again. Think of being able to circumnavigate the globe without stopping for fresh fuel!

"This the Selandia can readily do, as her tanks hold 1,000 tons of oil and her consumption for twenty-four hours is about

"This the Selandia can readily do, as her tanks hold 1,000 tons of oil and her consumption for twenty-four hours is about ten tons when moving at a speed of eleven knots per hour. So she can cover 26,400 knots, further than around the world at the equator in one hundred days without stopping for fresh oil. As the owners have steamships as well as oil motor ships, they can compare the performances of both.

"Here is the result: The Selandia saves \$25,000 in operating expenses over a steamship of the same size annually and earns \$15,000 more in freight money annually. These figures are based upon making three round voyages per year. So satisfactory has she proved in every respect that her builders have written me that the East Asiatic Company have placed an additional order with them for two more sister oil motor driven ships. It is safe to conclude that before many years have passed the Eavestone will only be remembered as the first of a large flect of oil motor driven vessels to visit the port of Savannah."

BLACK RIVER.

The Norwegian Pulp Market

In a market report published in Farmand for February 15, it is noted that considerable sales for prompt and for delivery over this year have taken place lately at the low prices now current. The impression is, however, that the market—similarly to last year when the prices also ruled low at this season—is likely to pick up during spring, the mills being well sold. Additional comment on market conditions from this issue of Farmand follows: follows:

AFFARSVALDEN, Feb. 12—The reduction of price of mechanical pulp which the Norwegian grinding mills have agreed to, as reported in our paper and confirmed in the last issue of Farmand, seems to have caused a more lively demand even from such quarters where the requirements before have been declared to be covered for some time forward. covered for some time forward.

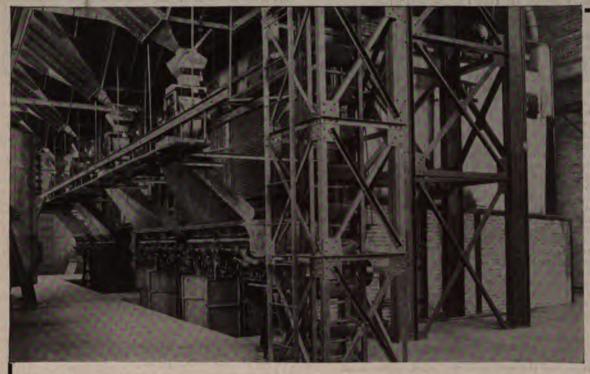
That the scarcity and exceedingly high prices of sulphite pulp will cause the paper mills to add larger quantities of mechanical pulp to a lot of s. c. wrapping paper, may be taken for granted, according to experience previously obtained on similar occasions. Thus there is no need of apprehending any pressing overproduction of ground pulp, because of the uncommonly great supply of water.

of water.

The market for chemical pulp is unchanged but firm. Even the sulphate pulp, the consumption of which is more limited, and having therefore not hitherto been able to show any rise in proquite in proportion to that of sulphite, has however during the first week obtained very good prices, and s. c. kraft pulp has as far we know been sold at \$39.13 to \$39.66, clean net f.o.b.

Finnish Report on Ground Wood

In Mercator's fortnightly report on pulp and paper for February 21, it is noted that sales of ground wood have increased since the price was reduced by the Norwegian producers. The outlook for holders of mechanical pulp is considered good since "the limited supplies of sulphite pulp and the high prices quoted for this class of goods make it probable that many papermakers will increase the proportion of mechanical pulp in many qualities of wrapping paper, as this has been done successfully before."



Westinghouse New Model Roney Stokers, at the plant of the Commonwealth Power Co., Milwaukee.

ONEY spent on engineering talent is generally recognized as a good investment. This applies particularly in stoker work. A boiler plant equipped with Westinghouse New Model Roney Stokers, under the recommendations of our Stoker Engineering Department, will produce steam at a lower total cost than can be obtained with any other equipment.

The Westinghouse Machine Company,

East Pittsburgh, Pa.

The Orr Felt & Blanket Co.

PIQUA, OHIO

All Grades of Paper Makers

FELTS AND JACKETS

We weave endless felts. A trial is solicited. We have standing orders for monthly shipments with some of the largest manufacturers. This should be convincing.







NEW YORK, March 11, 1913.

MECHANICAL PULP

General conditions governing the market for ground wood have not changed to any appreciable extent during the week under review. Prices are maintained with firmness under the influence of a steady demand. According to reports stocks at grinding centers are only moderate and with prospects of an early increase of demand from newsprint and wrapping paper consumers, holders of stocks are firm in their views. Withdrawals on outstanding orders continue heavy and keep pace with the production.

FOREIGN AND DOMESTIC PULP

There has been no noticeable improvement in the situation as regards purchasing for future needs, though in most quarters a renewal of business is looked for early in April. The demand for supplies on outstanding orders is good and withdrawals in the interval have been heavy for this time of year. Arrivals included large lines for the week just ended and these have, in most cases, passed directly into consumption. Importers report firm markets abroad and in some quarters it is predicted that buyers here will have to pay higher prices for supplies, when they enter the market for contracts covering deliveries over the next six months. The high cost and searcity of wood abroad, which bids fair to increase, together with prospects for an improvement over last year, will eventually force prices to higher levels. Subplite foreign—

BAGGING, ROPE, ETC.

The tendency of values continues upward in consequence of a steady buying movement and an absence of surplus of stocks here as well in primary markets abroad. Offerings by cable have involved fair lines of various materials at about previous prices and fairly large orders have been booked for invoices in various positions. The prospect for firm values is regarded as encouraging to holders, based on prospective moderate stocks and an early renewal of activity.

Wool Tares, heavy. 1.20 @ 1.25 Foreign Manila Rope 2.45 @ 2.60 Domestic Rope. 2.45 @ 2.60 New Burlap Cuttings. 1.45 @ 1.65 Flax Waste, washed 1.80 @ 2.85

IMPORTED RAGS

Under steady inquiries and fairly large orders booked in the interval, prices ruled firm but quotably unchanged. Cuttings appear to be attracting most attention and offerings of parcels in various positions have been readily taken up at former values. Arrivals for the week, included sizable lines, the bulk of which comprised lots previously purchased for direct consumption. Spot stocks are small and held firmly, particularly of good selections.

 German
 Blue
 Cottons
 1.65
 @ 1.70

 Dutch
 Blues
 1.80
 @ 1.85

 Light
 Prints
 1.80
 @ 2.00

 Extra
 Light
 Prints
 2.00
 @ 2.25

 New
 Mixed
 Cuttings
 2.00
 @ 2.70

 New
 Light
 Cuttings
 3.75
 @ 4.50

 Old
 Linen
 White
 3.75
 @ 5.25

DOMESTIC RAGS

Dealers in most instances report a steady inquiry at former values. Cuttings and whites of good quality and straight selections are in demand but business is held in check to some extent, owing to limited supplies. Orders in the interval for other varieties of rags covered fair qualities and dealers generally decline to shade the inside range of price quotations.

OLD PAPERS

Sales during the interval have been at firm prices, and no disposition is evinced by holders to urge sales at concessions from the quoted range. Hard and soft white shavings continue to attract most attention, and some heavy sales are reported. Extra manila cuttings have sold freely at the recent advance in price. In other descriptions a fair movement is reported, except in the common and mixed papers, which are in slow request.

TWINES

There continues an active call for supplies on outstanding contracts, but in the nature of new business, nothing of special interest has developed. Manufactures are naming former prices and in many quarters only orders for prompt shipment are being booked. Sellers are influenced to this by the uncertainty which surrounds the future course of prices for the raw material.

Marline Jute, 4½ . . 9½ @ 10

Marline Jute, 6 . . . 9½ @ 10

Marline Jute, 7 . . . 9 @ 9½

Marline Jute, 8 & 9 8½ @ 9

B. C. Hemp 18 . . 18 @ 19

B. C. Hemp, 24 . . . 17½ @ 18

B. C. Hemp, 18 . . . 17 @ 18

B. Hemp, 18 . . . 19 @ 20

B. Hemp, 24 18½ @ 19½

B. Hemp, 36 . . . 18 @ 19

Amer. Hemp, 4½ @ 19½

& 6 13 @ 14

CHEMICALS

The strong statistical position of the spot market for bleaching powder culminated in an appreciation of values. Holders are now asking 1.40 c. as the inside figure on spot lots. Inquiries in the interval have been numerous and sales covered sizable lines, which materially reduced stocks in first hands. Sal soda closed steady but unchanged with fairly large orders of spot lots reported. Caustic soda is finding a steady outlet at 1.50 c, and upward for 60 per cent f.o.b. works, as to quanity. Alum is meeting with a seasonable demand at 134c. and upward and at 234c. and upward for spot lots of ground and powdered, as to quantity, respectively. Brimstone prices are sustained on the basis of \$22 and upward per ton, as to terms of sale. Withdrawals on outstanding contracts are larger and a firmer tone pervaded the market at the close. China clay is firm under large withdrawals and renewals orders for supplies for delivery over the next 90 days. Spot prices closed firm on carlots at \$8 and upward and \$12 and upward per ton as to quality and quantity.

Telephone 2726 Broad

Cable Address, "Lagerlot Newyork

Scandinavian-American Trading Company

PRODUCE EXCHANGE BUILDING, NEW YORK

FOREIGN AND DOMESTIC

WOOD PULF

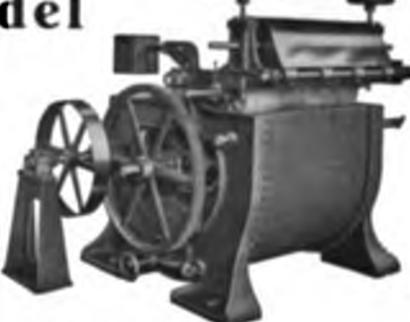
OF ALL KINDS

PAPER MILL SUPPLIES

The Wandel SAVE-ALL

Magnetic to an early or and on a man are an agree of the man advantages of the tipe san agree of the tipe of the tipe san agree of the tipe of tip

Carlong the Lose Produced SWE.



11. and the mergennesses of as operation, every pound of stock wood by a nicear point.

WANDEL SCREEN MFG. CO.

WALPOLE, MASS.

FOURDRINGER PAPER MACHINE



The Sandy Hill Iron and Brass Works

the second secon

Imports—Rags and Paper Stock

AT NEW YORK

Week Ended March 8, 1913

Salomon Bros. & Co., Str. Buffalo, Hull, 135 bs. manila waste. Atterbury Bros., Str. Michigan, Antwerp, 91 bs. bagging. A. Katzenstein, Str. Valturno, Rotterdam, 214 bs. bagging.

78 bs. rags. Atterbury Bros., Str. President Grant, Hamburg, 67 bs. bagging. Salomon Bros. & Co., Str. Re d'Italia, Naples, 384 bs. manila waste.

. Katsenstein, Str. Zaandyk, Rotterdam, 83 bs. new cuttings.

Atterbury Bros., by same, 124 bs. rags.
Salomon Bros. & Co., Str. Hellig Olav, Hamburg, 153 bs. rags.
A. Katzenstein, Str. Neckar, Bremen, 166 bs. rags, 44 bs. old bagging.

Salomon Bros. & Co., Str. Victorian, Antwerp, 84 bs. cotton waste.

Salomon Bros. & Co., Str. Pretoria, Hamburg, 138 bs. old rope.

Atterbury Bros., by same, 127 bs. rags.
Felix Salomon & Co., by same, 40 bs. old bagging.
Felix Salomon & Co., Str. Amerika, Hamburg, 13 coils old rope.
Castle Gottheil & Overton, Str. Prinz Friedrich Wilhelm,

Bremen, 57 bs. old bagging.

Marx Maier, Str. Rochambeau, Havre, 87 bs. old rope.

Castle Gottheil & Overton, Str. Campanello, Rotterdam, 477 bs. rags, 39 bs. new cuttings.

bs. rags, 59 bs. new cuttings.
Paul Berlowitz, by same, 166 bs. old waste paper.
Felix Salomon & Co., by same, 145 cs. 7 bs. old rope.
W. O. Davey & Co., by same, 5 bs. old rope.
Castle, Gottheil & Overton, Str. Soestdyk, Rotterdam, 57 bs.

E. Butterworth & Co., by same, 84 bs. old bagging. Felix Salomon & Co., by same, 580 bs. old bagging.

P. Garvan, Inc.. by same, 123 bs. old paper stock.
A. Katzenstein, by same, 93 bs. new cuttings.
Salomon Bros. & Co., by same, 49 bs. old bagging and new

cuttings.

Felix Salomon & Co., Str. Marengo, Hull, 420 bs. cotton rags, 116 bs. old bagging.

E. Butterworth & Co., by same, 147 bs. bagging.

W. O. Davey & Co., Str. Minneapolis, London, 79 coils of old

rope.
Felix Salomon & Co., Str. Monviso, Genoa, 206 bs. bagging, Felix Salomon & Co., Str. Monviso, Genoa, 206 bs. bagging, 135 bs. jute waste.
Castle, Gottheil & Overton, by same, 118 bs. bagging.
Felix Salomon & Co., Str. Ryndam, Rotterdam, 82 bs. old bagging, 389 bs. old paper stock.
Marx Maier, by same, 119 bs. old burlap bagging.
Felix Salomon & Co., Str. Hellig Olav, Copenhagen, 38 bs. old rope, 154 bs. bagging.
Warren, Marks & Co., by same, 70 bs. old bagging.
Salomon Bros. & Co., by same, 65 bs. new cuttings.
Marx Maier, by same, 50 bs. old bagging.
Leonard B. Schoenfeld & Co., Str. Kleist, Bremen, 23 bs. rags.
Felix Salomon & Co., by same, 41 bs. old bagging.

Felix Salomon & Co., by same, 41 bs. old bagging.

CHEMICALS

Arnold Hoffman & Co., Str. Victorian, Liverpool, 51 csks. bleaching powder.

Innis Speiden & Co., by same, 36 csks, bleaching powder. Troy Laundry Mfg. Co., by same, 30 bxs. bleaching powder,

15 bxs. caustic soda.

J. L. & D. S. Riker, by same, 60 bbls. 216 csks. bleaching powder. Innis Speiden & Co. Str. Buffalo, Hull, 50 drs. caustic soda. Arnold Hoffman & Co., Str. Celtic, Liverpool, 51 csks. bleaching

J. L. & D. S. Riker, by same, 142 csks. bleaching powder.

Woodpulp

Castle, Gottheil & Overton, Str. Soestdyk, Rotterdam, 277 bs. (56 tons).

Scandinavian American Trading Co., Str. Amerika, Hamburg, 1,100 bs. (137 tons).

Scandinavian American Trading Co., Str. United States, Christiania and Copenhagen, 600 sacks (30 tons), 450 bs. (75 tons).

Scandinavian American Trading Co., Str. Valesia, Hamburg, 300 bs. (50 tons).

Castle, Gottheil & Overton, Str. Eugenia, Marseilles, 100 bs. (20 tons).

Felix Salomon & Co., Str. Pretoria, Hamburg, 1,993 bs. (249

tons).

Price & Pierce, by same, 1,252 bs. (157 tons).

Buckley, Duncan & Co., by same, 406 bs. (50 tons).

Scandinavian-American Trading Co., by same, 1,200 bs. (200 tons).

Felix Salomon & Co., Str. Soestdyk, Rotterdam, 2,125 bs. (240 tons) sulphite.

Castle, Gottheil & Overton, by same, 277 bs. (56 tons). Price & Pierce, by same, 100 bs. (20 tons) dry. R. Helwig, by same, 275 bs. (55 tons) bleached. R. Helwig, Str. Ryndam, Rotterdam, 497 bs. (62 tons).

Perkins Goodwin & Co., Str. Hellig Olav, Christiania, 2,000 bs. (240 tons).

Felix Salomon & Co. by same, 1,789 bs. (224 tons) dry E. Butterworth & Co., by same, 200 bs. (25 tons) sulphite. E. M. Sergeant & Co., by same, 1,376 bs. (172 tons). Price & Pierce, by same, 890 bs. (112 tons) dry.

AT NEW ORLEANS

Scandinavian-American Trading Co., Str. Hoerde, Hamburg, 350 bs. (50 tons) woodpulp. Salomon Bros. & Co., Str. Craighall, 125 hs. manila waste.

AT GALVESTON

Scandinavian-American Trading Co., Str. Noruega, Hamburg. 800 bs. (100 tons) woodpulp.

AT NEWPORT NEWS

Scandinavian-American Trading Co., Str. Ferndene, Hamburg,

Scandinavian-American Trading Co., Str. Ferndene, Hamburg, 2,150 bs. (270 tons), woodpulp.
Scandinavian-American Trading Co., Str. Ferndene, Christiania, 600 bs. (75 tons) woodpulp.
Scandinavian-American Trading Co., Str. Mexicano, Hamburg, 1,040 bs. (130 tons) woodpulp.
Scandinavian-American Trading Co., Str. Mexicano, Christiania, 240 bs. (30 tons) woodpulp.
M. Gottesman & Son, by same, 1,218 bs. (175 tons).
Parsons Trading Co., by same, 4,100 bs. (500 tons).

AT BOSTON

A. Katzenstein, Str. Median, Manchester, 158 bs. new cuttings. Salomon Bros. & Co., Str. Inkum, Gothenburg, 103 bs. bagging, 65 bs. rags.

Scandinavian-American Trading Co., by same, 1,085 bs. (175 tons) woodpulp.
Castle, Gottheil & Overton, Str. Marquette, Antwerp, 182 bs.

waste paper.

Marx Maier, by same, 269 bs. new cuttings, 107 bs. old rags.

Atterbury Bros., Str. Zuiderdyk, Rotterdam, 60 bs. bagging.

Castle, Gottheil & Overton, by same, 792 bs. (155 tons) woodpulp.

Atterbury Bros., Str. Numidian, Glasgow, 94 bs. waste paper. Atterbury Bros., Str. Michigan, Liverpool, 134 bs. bagging. Atterbury Bros., Str. Cambrian, London, 106 bs. waste paper. Toronto Mill & Metal Co., Str. Buffalo, Hull, 100 bs. 88 coils old

rope, 27 bs. new rags.

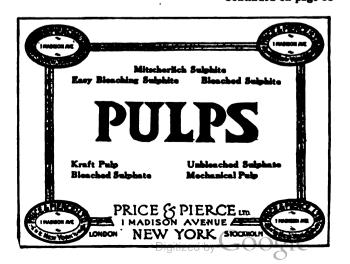
E. Butterworth & Co., by same, 22 bs. old rope.

F. W. Bird & Co., by same, 60 bs. bagging, 6 bs. new cuttings. 128 bs. cotton rags.

Dexter P. Lillie & Co. by same, 35 bs. paper stock. Hollingsworth, Vose & Co. by same, 119 bs. old rope.

Atterbury Bros., Str. Sloterdyke, Rotterdam, 171 bs. rags. Salomon Bros. & Co., Str. Inkum, Gothenburg, 161 bs. old bag-

ging. Castle, Gottheil & Overton, Str. Main, Bremen, 68 bs. rags. Atterbury Bros., Str. Philadelphia, Antwerp, 264 bs. rags. Atterbury Bros., Str. Bulgaria, Hamburg, 451 bs. bagging. Continued on page 38





BUILT BY 1112

APPLETON MACHINE CO. APPLETON, WIS.



FELTS JACKETS

Manufactured by

APPLETON WOOLEN MILLS

Appleton, Wis.

The Waterbury Felt Co.



Parsons Trading Company

Paper and Pulp







Imports—Rags and Paper Stock Continued from page 36

AT PHILADELPHIA

M. Gottesman & Son, Str. Breslau, Bremen, 780 bs. (125 tons) woodpulp.

Castle, Gottheil & Overton, Str. Manchester Port, Manchester,

Castle, Gottheil & Overton, Str. Manchester Port, Manchester, 70 bs. rags, 40 bs. new cuttings, 82 bs. waste paper. Atterbury Bros., by same, 142 bs. rags.
W. T. Tilden & Co., by same, 52 bs. flax waste.
Miller Waste Co., by same, 17 bs. cotton waste.
Reis & Co., by same, 35 bs. Cotton waste.
Burr Bros., by same, 35 bs. cotton waste.
Burr Bros., by same, 35 bs. cotton waste.
F. B. Vandergrift & Co., by same, 53 bs. new cuttings.
Scandinavian-American Trading Co., Str. Nordhvalen, Copenhagen, 1,040 bs. (130 tons) woodpulp.
R. F. Downing & Co., Str. Leonards, Rotterdam, 108 bs. rags.
W. Wolf & Sons, by same, 47 bs. cotton waste.
Felix Salomon & Co., by same, 141 bs. rags, 203 bs. (50 tons) woodpulp.

woodpulp. Atterbury Bros., Str. Manitou, Antwerp, 217 bs. old bagging. Castle, Gottheil & Overton, by same, 33 bs. 77 bs. 74 bs. rags. Atterbury Bros., Str. Mongolian, Glasgow, 85 bs. waste paper. Castle, Gottheil & Overton, Str. Potomac, Leith, 144 bs. rags,

261 bs. waste paper. Castle, Gottheil & Overton, Str. Zuiderdyk, Rotterdam, 317 bs. 75 bs. rags

Parsons Trading Co., by same, 5 cases printing paper. F. B. Vandegreft & Co., Str. Manchester Merchant, 138 bs. waste

paper, 68 bs. new cuttings. Reis & Co., by same, 44 bs. cotton waste, 30 bs. old bagging. O. G. Hempstead & Son, by same, 98 bs. rags.

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115 bxs. bleaching powder. Arnold Hoffman & Co., Str. Mongolian, Glasgow, 85 csks. bleach-

ing powder.

J. L. & D. S. Riker, Str. Manchester Merchant, Manchester, 110 bxs. bleaching powder.

Morey & Co., Str. Linda Fell, Fowey, 40 csks, china clay.

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March, 1913, at 12 o clock noon.

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The Trustee reserves the right to reject any and all bids event upon the approval of the court and upon consent of the

The Trustee reserves the right to reject any and all bids except upon the approval of the court and upon consent of the creditors herein.

The aforesaid property will be sold subject to a mortgage of \$25,000, and interest, which said mortagge may be paid off by the purchaser of said property at any time before June 25th, 1913, the date on which said mortgage is due and payable. Said property is open for inspection upon obtaining an order from the Trustee.

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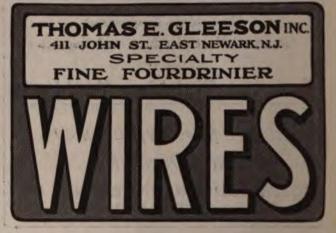
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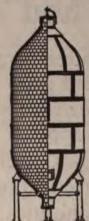
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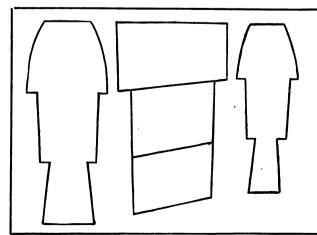
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